

ALBERTA LEGISLATURE LIBRARY



3 3398 00474 1780

EXECUTIVE SUMMARY
MANAGEMENT OF GROWTH
DEVELOPMENT STRATEGY
TO 1980

CA2 ALID 55
1974E87

Digitized by the Internet Archive
in 2026 with funding from
Legislative Assembly of Alberta - Alberta Legislature Library

EXECUTIVE SUMMARY
MANAGEMENT OF GROWTH
DEVELOPMENT STRATEGY
TO 1980

Prepared by the
Economic Research & Analysis Branch
Alberta, Industry & Commerce
October 23, 1974

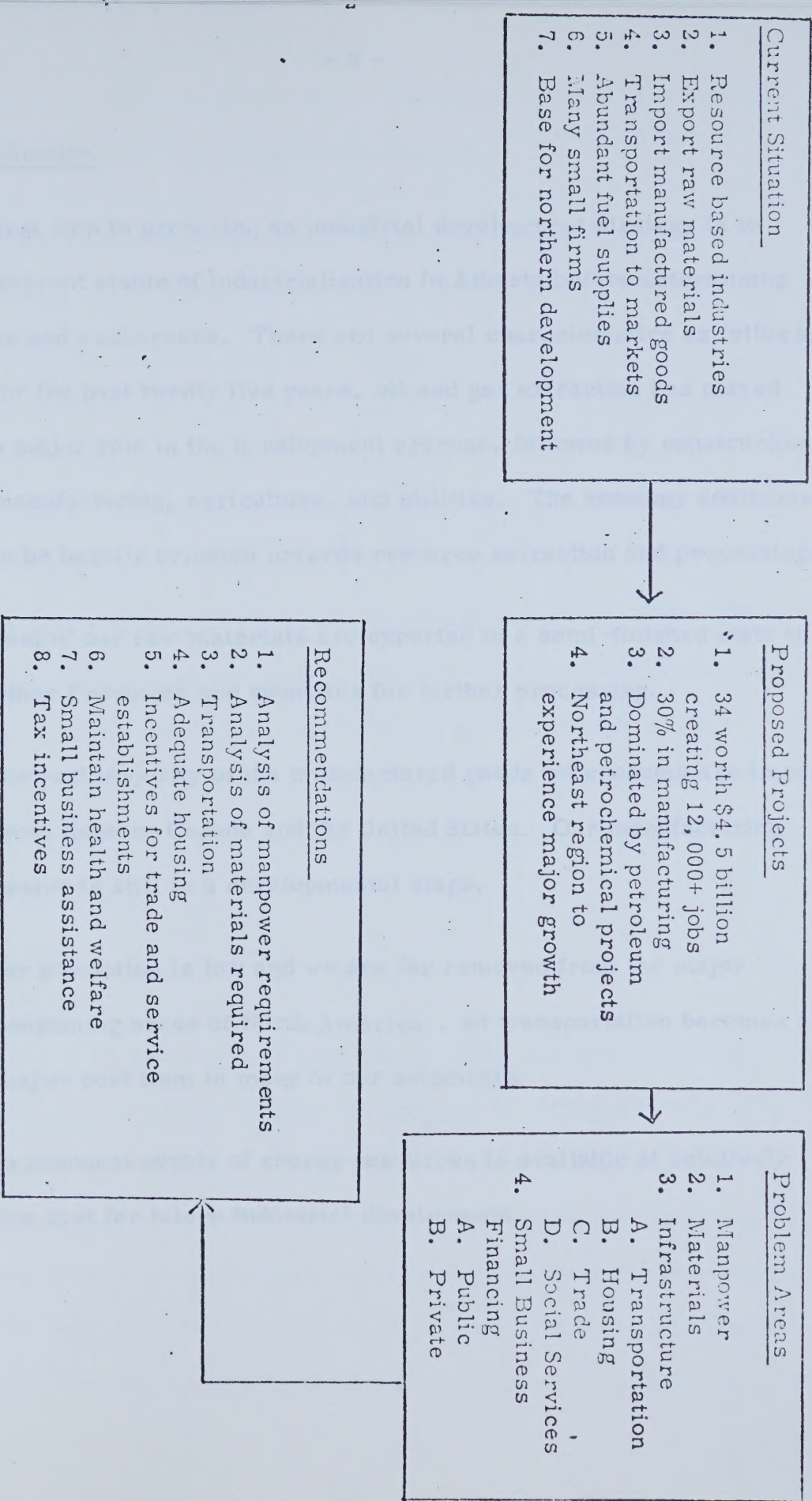
1. Introduction and Purpose

This report is a direct extension of the earlier reports "Management of Growth" which was presented to the Cabinet Standing Committee on Economic Planning and Transportation on May 19th, and the "Alberta Challenge" which was presented to the Management Committee of this Department on September 13th. The comments and suggestions received were incorporated into this volume which was considered by the Management Committee on October 15th, and revised accordingly.

The purpose of the Report is to provide some guidelines for development based on the premise that the Alberta Government should contribute to solving some of the problems now facing our economy. The process begins with an assessment of our current situation, its strengths and weaknesses, which can serve to focus our attention on development prospects. We need to define the current and emerging dimensions of our industrial growth and so a review of all outstanding projects is provided. The information lets us determine the comparative growth patterns by industry and location. This leads to an assessment of short run and long run problems that pose a threat to the achievement of our potential. Each one is analyzed in detail leading to a set of recommendations which should serve as the basis for policy formulation and implementation. The process is illustrated in Figure 1.

FIGURE 1

ALBERTA DEVELOPMENT STRATEGY TO 1980



2. Current Situation

The first step in preparing an industrial development strategy is to review the current status of industrialization in Alberta before determining the strengths and weaknesses. There are several characteristics as follows:

- (a) For the past twenty five years, oil and gas extraction has played a major role in the development process, followed by construction, manufacturing, agriculture, and utilities. The economy continues to be heavily oriented towards resource extraction and processing.
- (b) Most of our raw materials are exported in a semi-finished state to other Provinces and countries for further processing.
- (c) The vast majority of the manufactured goods we consume are imported from Eastern Canada and the United States. Our manufacturing sector is still in a developmental stage.
- (d) Our population is low and we are far removed from the major consuming areas of North America , so transportation becomes a major cost item in many of our shipments.
- (e) An abundant supply of energy resources is available at relatively low cost for future industrial development.

Digitized by the Internet Archive
in 2026 with funding from
University of Alberta Library

- (f) Most of our industrial sectors are dominated by small and medium sized firms with less than 100 employees.
- (g) Alberta is strategically located to provide essential goods and services for resource development in the Northwest Territories and Yukon.

III. Proposed Projects

A recent survey of industrial projects showed that 66 were under construction worth \$1.7 billion with a potential of creating 5,000 jobs and 35 were proposed worth \$4.5 billion creating 12,000 potential jobs. This is additional to primary highway construction worth \$90 million in 1974. There is a trend toward further diversification in the number of projects listed under manufacturing, however, the list is dominated by a few synthetic crude extraction plants near Fort McMurray. This area shows symptoms of the types of problems that will affect the rate of growth in other regions and sectors in the next several years.

IV. Problem Areas

A. Manpower

Shortages of skilled manpower for construction and manufacturing sectors exist and are expected to persist in virtually all areas for some time, in the absence of a strategy. The problem is acute in remote northern settlements and for smaller companies. The size of the labour force required in the Fort McMurray area is so great that serious shortages could be caused elsewhere. The higher wages paid in the construction and manufacturing sectors is making it extremely difficult for the service

sector to obtain and retain required personnel at present wages and working conditions.

B. Materials

Shortages of steel and cement are delaying projects under construction and postponing the start of proposed projects. The requirements of oil sands extraction plants are placing an undue burden on materials, and are in direct competition with virtually all other investments throughout the Province.

C. Transportation

Existing transportation corridors, rail, road and air, are inadequate for the industrial needs of Alberta. More and better roads are required to connect major development areas in the North.

D. Housing

Housing facilities are often inadequate for the needs of all the personnel associated with the construction and operation of industrial projects in the remote areas.

E. Trade

The retail and service establishments have not generally developed quick enough in any of the remote resource towns.

F. Health, Education and Recreation

Most of the people in the resource towns have come from large urban areas in the South and are demanding a certain level of facilities for their families if they are going to stay.

G. Small Business Financing

Many of our sectors are top heavy with small and medium sized firms which have difficulty raising the necessary investment capital.

All of these problem areas suggest many opportunities for managers, skilled workers, and entrepreneur in the construction, manufacturing, wholesale, retail and service sectors. While the Alberta Government is responsible for administering the disposition of resource and providing transportation and health services etc., the private sector has potential for contributing to the overall development of the economy. Both should coordinate their efforts into a compatible strategy that meets our basic goals and objectives. The following recommendations are provided to translate the problems into opportunities for development.

V. Recommendations

- a) All companies proposing to develop 'major' projects should be required to submit a detailed list of their manpower requirements during construction and operating phases. The information on location, extent and duration of shortages should assist industry and government officials in developing contingency plans including the scheduling of projects if conflicts are anticipated
- b) All companies proposing to develop 'major' projects should be required to submit a detailed list of their material requirements, especially steel, cement and glass so that the impact of shortages can be minimized.

- c) Transportation corridors should be developed to encourage further development and diversification on a regional basis.
- d) Housing requirements should be met before any large influx of persons is encouraged into an undeveloped area.
- e) More incentives for wholesale, retail, and service establishments should be provided soon after a major project is proposed in undeveloped areas.
- f) Health and social services should be provided at the same time any major project is being constructed.
- g) Counselling and financial assistance programs should be provided for small businesses.
- h) Tax incentives should be used to encourage regional development and further diversification.

MANAGEMENT OF GROWTH
DEVELOPMENT STRATEGY
TO 1980

Prepared by the
Economic Research & Analysis Branch
Alberta Industry & Commerce

October 22, 1974

TABLE OF CONTENTS

	<u>Page</u>
I. Introduction and Purpose	1 - 2
II. Current Situation	3 - 5
III. Proposed Projects	6 - 13
IV. Problem Areas	14 - 28
A. Manpower	
B. Materials	
C. Infrastructure	
1. Transportation	
2. Housing	
3. Trade	
4. Social Services	
D. Small Business Financing	
1. Private	
2. Public	
V. Recommendations	29 - 30
VI. Agricultural Processing Development Strategy	31 - 32
VII. Coal Development Strategy	33 - 35
VIII. Wood Products Development Strategy	36 - 40
IX. Metal Industry Development Strategy	41 - 42
X. Petrochemical Development Strategy	43 - 45
XI. Appendix I - Proposed Projects	1 - 10
Appendix II - Housing Development	11 - 12
Appendix III - Number of Skilled Construction Workers	13 - 14
by Occupation Required to Complete 250	
Hours in a Three Month Period	
Appendix IV - Oil Sands Project Manpower Requirements	15
Appendix V - Agricultural Processing	16 - 17

Appendix VI - Coal	18 - 20
Appendix VII - Wood Products	21 - 22
Appendix VIII - Petrochemicals	23 - 26

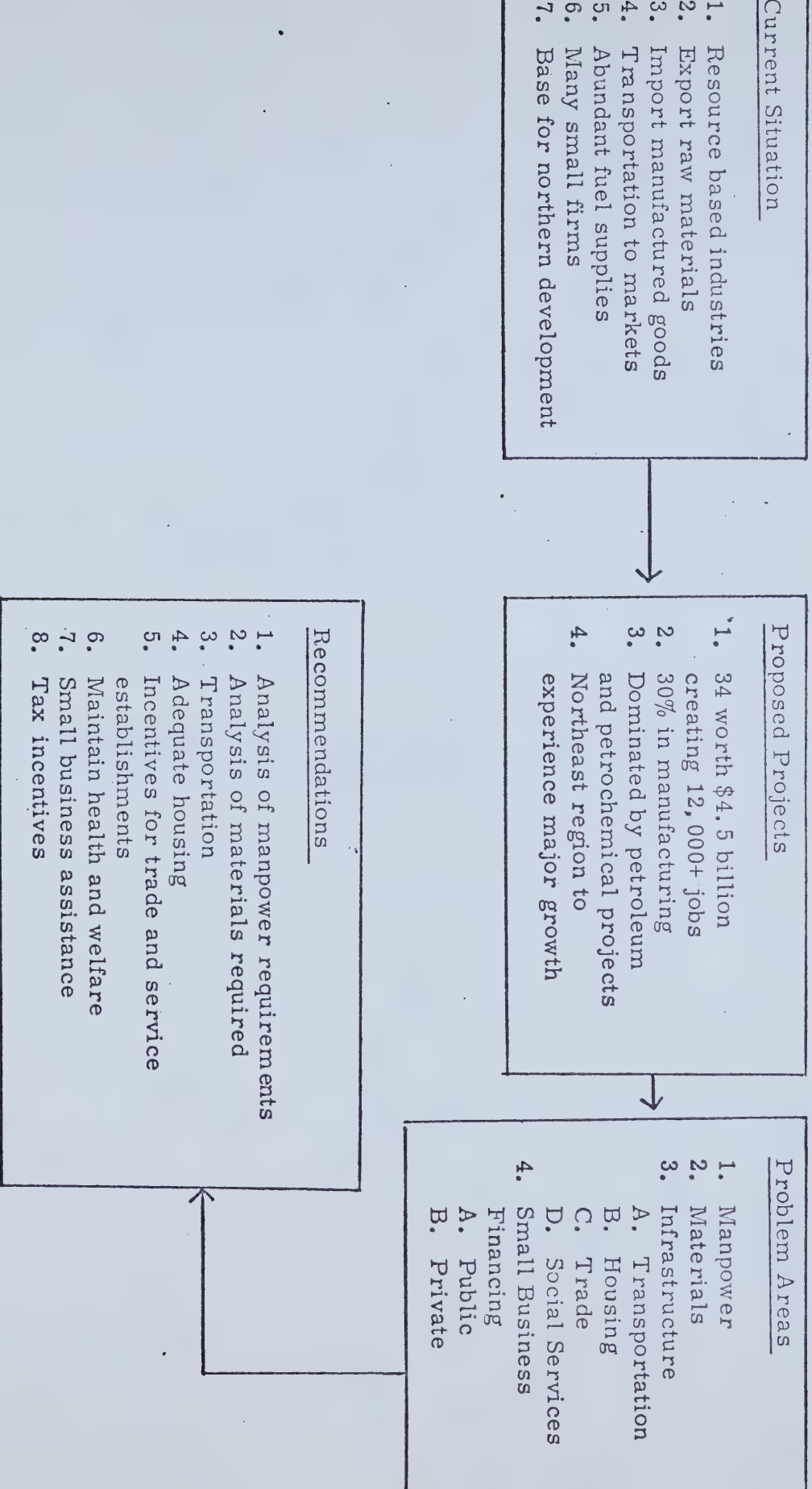
I. INTRODUCTION AND PURPOSE

1. Introduction and Purpose

This report is a direct extension of the earlier reports "Management of Growth" which was presented to the Cabinet Standing Committee on Economic Planning and Transportation on May 19th, and the "Alberta Challenge" which was presented to the Management Committee of this Department on September 13th. The comments and suggestions received were incorporated into this volume which was considered by the Management Committee on October 15th, and revised accordingly.

The purpose of this report is to present a broad strategy for the Alberta Government which should be relevant to the guidelines to be placed before the Cabinet Committee on Economic Planning. This strategy starts with a description of the current economic situation, a review of the projects now being proposed, and the current and emerging problems. A list of recommendations is put forward to achieve our economic goals which are then evaluated on a sector basis. The result, we feel, is a fairly reasonable plan of action for managing our future growth and development. The approach is illustrated in Figure 1.

ALBERTA DEVELOPMENT STRATEGY TO 1980



II. CURRENT SITUATION AND OUTLOOK

II. Current Situation and Outlook

Alberta's average quarterly index of industrial activity (a quantitative measure of output) increased by an average of over 8% between 1968 and 1973. The major factor contributing to this growth was the mining industry which grew at an annual rate of 11.4%. Following in order of relative importance were the construction industry at over 8%, the manufacturing industry by 5.8%, agriculture by less than 1%, and utilities by over 12%. Mining accounts for 37% of the total net value of production in commodity producing industries in Alberta followed by construction for 23%, manufacturing for 20% and agriculture for 16%. The comparable figures for Canada are 10.9%, 17.3%, 56.4% and 8%. When the gross value of production in manufacturing is considered, the food and beverage industry accounts for almost 50% of the total. The index is illustrated in Figure 2.

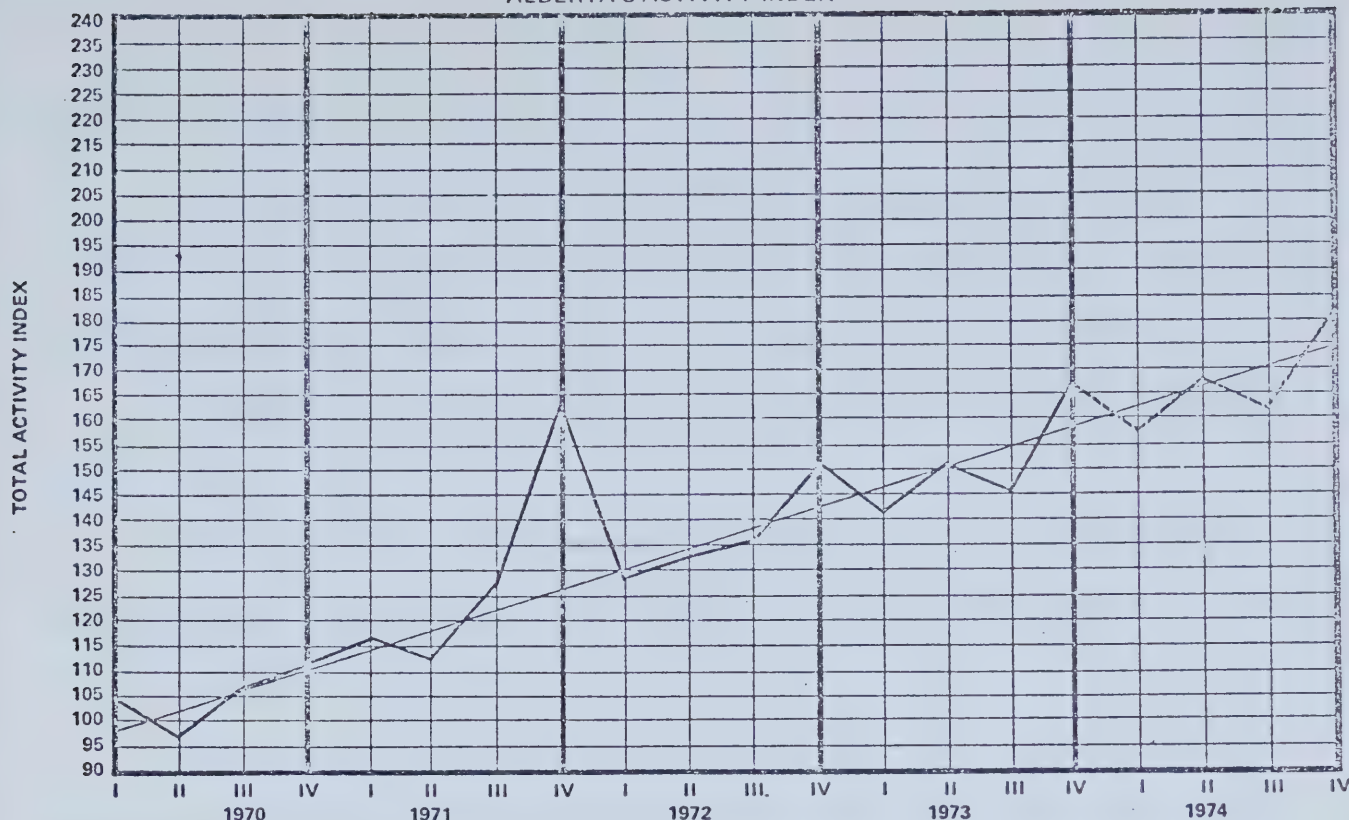
The outlook for the rest of 1974 is for continued expansion of the economy based in part of large investments during 1973. The index is therefore, expected to increase by 6.5% this year, mainly in construction, manufacturing, and agriculture. Looking ahead to 1975, preliminary indications are that growth will moderate to an increase of 5.8%. Movements in this index are indicative of the economy's performance in total.

Between now and the end of 1978, total investment, measured in constant 1961 dollars, will probably increase at an average annual rate of 8%. This compares with the 5 per cent average over the past ten years. The largest increase of 20 per cent is expected this year followed by 6 per cent in 1975, and 11 per cent in 1976. No change is foreseen in 1977 with an increase of

Figure 2

- 4 -

ALBERTA'S ACTIVITY INDEX



PERTINENT ECONOMIC INDICATORS FOR THE PROVINCE OF ALBERTA

INDICATOR	Percentage Change in Volume Activity		
	Total Year 1972 - 1971	Total Year 1973 - 1972	Year to Date 1974 - 1973
MANUFACTURING			
Slaughtered Meat Production	+ 3.3	- 2.2	- 9.6 (Jan. - June)
Slaughtered Meat Exported	+ 5.3	- 0.6	- 2.3 (Jan. - June)
Refinery Production	+21.4	+10.0	+10.5 (Jan. - May)
Cement Production	+ 3.5	+ 7.8	- 0.6 (Jan. - June)
MINING			
Oil Production	+20.8	+19.6	+ 2.6 (Jan. - May)
Gas Production	+16.8	+ 7.3	+ 0.6 (Jan. - May)
Footage Drilled	+21.9	+28.3	+ 4.9 (Jan. - May)
Number of Wells Drilled	+13.1	+33.2	+90.9 (Jan. - May)
Coal Production	+14.1	- 0.4	+ 2.1 (Jan. - May)
CONSTRUCTION			
Urban Dwelling Starts	- 15.4	- 7.2	+ 1.3 (Jan. - June)
Rigid Insulation Board Shipments to Alberta	+ 5.9	- 1.7	- 4.4 (Jan. - June)
Value of Alberta Building Permits	+12.1	+20.0	+ 3.0 (Jan. - June)
AGRICULTURE			
Grain Shipments	- 2.9	- 16.4	+ 3.2 (Jan. - July)
Livestock Marketed	- 1.6	- 6.4	N/A (Jan.)
Farm Cash Receipts	+14.0	+32.3	+71.3 (Jan. - June)
FORESTRY			
Lumber Production	+16.0	+33.6	- 5.3 (Jan. - June)
Lumber Sales	+ 5.7	+17.5	- 22.5 (Jan. - June)
Lumber Exports	+24.7	+ 2.5	- 37.0 (Jan. - June)
Pulpwood Production	+47.8	+46.6	+120.0 (Jan. - June)
UNEMPLOYMENT RATE (unadjusted)			
	JULY 1974	JUNE 1974	JULY 1973
Canada	4.6	4.8	4.8
Alberta	2.3	2.1	3.5
CONSUMER PRICE INDEX (1961 = 100)			
	JULY 1974	JUNE 1974	JULY 1973
Calgary-Edmonton	157.3	155.7	141.8

5 per cent in 1978.

Investment in the primary sector will likely increase at an average annual rate of 11 per cent over the next five years due mainly to the construction of oil sands extraction plants and investment in the coal mining industry.

Investment in manufacturing is expected to peak in 1976 with an annual growth rate of 19 per cent.

Investment in the service sector is not expected to grow as fast as the others although it will be higher than before at about 6 per cent annually over the five year period.

The Alberta economy continues to be heavily oriented towards resource industries, especially non-renewable minerals. It is also a fact of life that we export a large proportion of raw materials and semi-finished goods, 80 per cent in mining and agriculture, and we import a high proportion of manufactured goods, 97 per cent of total imports. We are far removed from the major consuming centres of Canada and the United States, and being a land-locked province increases the transportation costs, however, Edmonton is an important base of supply for goods and services used in northern developments. The structure of our industry is such that it tends to be dominated by small and medium sized firms which are concentrated in our larger cities, in central and southern Alberta.

III. PROPOSED PROJECTS

III. Proposed Projects

The Department of Industry and Commerce has recently compiled a list of industrial projects which were classified as being completed, under construction or proposed as of June 30, 1974. An industrial project was defined as (a) an expansion of already existing facilities or (b) the construction of new industrial plants not associated with retail or wholesale trade, transportation or basic construction activities. In addition, only industrial projects with a total capital cost exceeding \$100,000 were considered.

Of the 147 projects compiled in the survey, there is a total dollar value of almost \$6.3 billion, creating 18,405 additional jobs. There are 46 completed projects with a total expenditure of almost \$57.2 million creating 1,279 permanent jobs and 66 projects under construction with a capital expenditure of almost \$1,694 million creating 4,596 jobs. The 35 proposed projects, with a capital expenditure of \$4,504 million possibly creating 12,530 jobs, may not all materialize as some of these projects are competitive proposals by different companies. These projects are listed in Appendix I.

The projects that were completed as of June 30, 1974, included 26 in manufacturing; of the 66 projects under construction, 31 are in manufacturing; and of the 35 proposed projects 9 are in manufacturing.

The significance of petroleum and petro-chemical products to the Alberta economy is underscored by the bulk of capital expenditures accounted for by this sector, \$5.53 billion or about 88% of the total capital expenditure for projects completed, under construction and proposed.

In terms of regional impact, the North-East region will witness 10,222 jobs or 54% of the employment created by the 147 projects. A major portion of the capital expenditures, about 65% will also be spent in this area.

In terms of number of projects, the Edmonton region accounts for 35 of the 147 projects listed.

The total value of projects under construction and proposed for the period under review is about \$6.2 billion, compared to the \$2.6 billion for projects under construction and proposed, compiled in January. The difference in these figures is mainly a result of new proposals in the petroleum and petrochemical sector. For example, three synthetic crude extraction plants have been added to the list. Upward revisions of capital expenditures for some projects in the first list published also contribute to the difference. For example the expansion of the Calgary Power Sundance plant published at \$90 million has now been re-evaluated up to \$290 million.

The survey was broken down by geographic region and industry group as well as the current status of the project. The highlights of the breakdown are as follows:

Northwest (North and West of Edmonton)

30 projects with capital expenditure of almost \$388 million, creating 1,721 jobs with the most significant developments in the Forest products industry where close to \$40 million expenditure could create an additional 1,006 jobs.

Northeast (North and East of Edmonton)

Of the 11 projects in this region, 6 in the petroleum and petrochemical

industry account for almost 4 billion or 97.4% of all capital expenditures.

There should be over 10,000 permanent jobs created, mainly in this industry, due primarily to the impact of the 4 synthetic crude extraction plants in the Fort McMurray area which are estimated for completion in the 1980's. This accounts for 55% of the total provincial employment created.

Edmonton Region

There are 35 industrial projects listed, 26 of them in the manufacturing sector. 11 of these projects have been completed providing 545 permanent jobs. The petroleum and petrochemical industry with 3 projects accounts for approximately 85% of the \$829 million total capital expenditures for this region and a significant percentage of the 2,806 jobs created.

Central (Between Calgary and Edmonton)

Industrial activity is represented by 24 projects where up to \$180 million could be invested creating over 1,400 jobs. Mining accounts for over \$69 million and 700 jobs, the principal project being the Manalta Coal Ltd., proposal of \$60 million in the Gregg River area.

Calgary Region

Major industrial projects number 18, capital investment is estimated at approximately \$25 million which should create 677 permanent jobs. The manufacturing industries represent most of this activity with capital expenditure of almost \$24 million, resulting in an additional 610 employees. There were 7 completed manufacturing projects amounting to \$6.3 million, 7 projects under construction for \$13.8 million, the largest single project being the

Firestone Tire & Rubber Co. expansion worth \$8 million.

Southwest (South of Calgary, West of and including Lethbridge)

12 projects involving more than \$125 million investment will create 496 jobs. There are 9 projects in the manufacturing sector with \$12.5 million expenditure. The Cominco Ammonia plant proposal with capital expenditure of \$112 million accounts for the bulk of the expenditures intended for this region.

Southeast (South of Calgary and East of Lethbridge) .

Agricultural processing industries make up the largest number of projects, 8 of 17 with the petroleum and petrochemical industries having 7 projects, 5 proposed worth \$631 million, 2 under construction worth \$41 million. The Alberta Ammonia Ltd., proposal in Raymond is the largest single project at \$400 million where upwards of 250 jobs could result. There are a possible 1,049 permanent jobs created in the region from the projects. The following maps show the regional breakdown by industry and investment.

IV. PROBLEM AREAS

IV. Problem Areas

The discussion earlier of the current situation implies that certain problems are inhibiting balanced growth at this time. In light of the list of industrial projects now on the drawing boards, the problems could be a major factor in our future development. These problems are reviewed under the following headings: manpower, materials, infrastructure, small businesses, and financing.

A. Manpower

A tight labour market is anticipated in the next five years, especially in the construction trades and construction related occupations. The Department of Manpower and Labour's forecast of the demand and supply for construction labour in the next five years are as follows:

	(1)	(2)	(2-1)
<u>Year</u>	<u>Construction Labour Demand</u>	<u>Construction Labour Supply</u>	<u>Surplus/ -Shortfall</u>
1974	60,338	62,748	+2410
1975	66,239	65,856	- 383
1976	74,585	68,964	-5621
1977	78,171	71,736	-6435
1978	78,499	74,670	-3829
1979	79,028	77,532	-1496
1980	80,357	79,968	- 389

Shortages are anticipated in the following construction trades:

Electricians (peak shortage, 1977 - 1,926 workers)

Insulators (peak shortage, 1977 - 377 workers)

Millwrights (peak shortage, 1977 - 94 workers)

Pipefitters (peak shortage, 1977 - 2,830 workers)

Pressure Welders (peak shortage, 1977 - 1,072 workers)

The tightness in the labour market is further enhanced by the apparent full employment of our current labour force at 1.7% unemployment for September, down from 2.0% in August. The overall picture is summarized in Figure 3 which shows the expected shortages.

A survey of the construction industry confirmed the concern about labour supply for all the projects now proposed in every region of the Province. If all the major projects came to fruition then the problem will be even more severe. The big unknown is that we simply do not know how many of the proposed projects will reach the construction stage. Industry spokesman stated that the high level of construction activity all across the country has diminished the supply available from other Provinces. They also indicated that there is little problem in obtaining skilled workers around urban centres on major projects, but there is a problem in attracting them to remote locations.

FIGURE 3

LABOUR DEMAND AND SUPPLY, ALBERTA, ACTUAL AND FORECAST

(1966 - 1980)

<u>Actual</u>	(1) Labour Demand Total 000's	(2) Net Labour Supply Assuming Full Employment at 2%	(2-1) Surplus/ Shortage 000's
1966	555	550	- 5
1967	569	567	- 2
1968	591	592	+ 1
1969	616	616	0
1970	627	637	+10
1971	636	651	+15
1972	663	675	+12
1973	696	704	+ 8
<u>Forecast</u>			
1974	740	741	+ 1
1975	766	769	+ 3
1976	812	805	- 7
1977	845	837	- 8
1978	882	872	-10
1979	918	905	-13
1980	955	933	-22

B. Materials

The multiplicity of major industrial projects being considered in the next five years require basic inputs for construction to get underway. Two main examples are cement and steel, the shortage of which has been a concern in recent months. The demand for steel in Alberta is forecast to grow at an annual rate of 7.5% to 8% until 1980. The current level of steel supply is only 70 - 75% of actual steel requirements.

The current demand for cement is high and is expected to grow even more with the anticipated construction start-ups of major projects within the next year. The major cement companies in Alberta are already operating at capacity and are resorting to allocations to fill the demands of consumers.

Our recent survey of construction executives revealed that most expect the present 'tight' supply of materials to persist into 1975. Most of the shortages are an international phenomenon which is forcing prices even higher. In some cases the shortages are only imaginary because buyers are not able to pay the asking price.

The most noticeable affect of extended delivery dates has been the postponement in either the construction phase or start up date of several major projects such as the Imperial Oil refinery, Strathcona, and the Simpson Timber Company sawmill, Whitecourt.

C. Infrastructure

1. Transportation

Transportation becomes a major problem in virtually all our major

proposed projects due to their location. In the past our development has generally been piecemeal and erratic on a locational basis. Some areas continually lag behind others in development. Attention is gradually being directed this way in conjunction with some of the larger projects. The existing road and rail links between Edmonton and Fort McMurray are inadequate for the oil sands projects. This years expenditures on primary highways are expected to reach \$150 million with next year's budget at \$200+ million. Airport construction was valued at \$10 million in 1973, and estimated at \$20 million for 1974.

We will witness the implementation of several development policies in the next few years designed specifically to deal with these problems. The Alberta Oil Sands Corridor Study is just one example of a plan to direct further heavy industry from the Edmonton area by establishing transportation corridors throughout Northern Alberta. These corridors are continuous strips of land containing two or more facilities for the conveyance of people, energy, and/or materials. This type of concept will overcome some of the infrastructure problems, especially transportation and enhance the goal of regional development. The components of the total package are transportation corridors, terminals, and industrial parks at periodic intervals. The use of a corridor is not limited to transportation facilities but could include other specialized land uses such as hiking trails, hunting reserves, athletic fields, golf courses, etc. Transportation links are vital in overcoming the disadvantages of location.

2. Housing

The most critical requirement of a new town is that it adequately accommodate the work force of the proposed project and the families of the married personnel. It is therefore, essential that a construction program be developed that will satisfy the growth requirements of the community. In order to determine the amount of housing required, it is necessary to derive an estimate of the population and total labour force of a town developed to meet the needs of the employees for a tar sands project. These plants provide on the average 1,500 permanent jobs and a peak requirement of 3,000 construction personnel. These jobs will, through the multiplier effect, result in the creation of a significant number of additional jobs in service-related industries such as retailing and professional services. It is estimated that one of these towns would have a permanent labour force of 2,250 with a population of 9,000 in its third year of existence.

In order to analyze the type and volume of housing required the following assumptions were made:

1. All of the personnel required in the construction phase will be housed in company camps.
2. The basic services for these employees will be provided for by existing towns or temporary company stores.
3. Permanent employees do not arrive in the new town until the fall of 1978.

4. An additional oil sands plant is expected to be in operation by 1978 which will absorb the excess construction labour.
5. The population distribution of the permanent labour force is assumed to be 80% married and 20% single.

Given these assumptions the number of permanent employees (and non-basic employees) and total population of the town would be at a minimum:

	<u>Number of Permanent Employees</u>		
	<u>1978</u>	<u>1979</u>	<u>1980</u>
Basic	250	1, 250	1, 500
Non-Basic	125	625	750
Total	375	1, 875	2, 250
Total Population	1, 500	7, 500	9, 000

If we assume all company employees will be able to purchase single family homes (through a company home-ownership assistance program if necessary) then approximately 200 houses and 50 apartment units will be required by permanent company employees arriving in the fall of 1978. Non-basic employees will require an additional 50 houses and 75 apartment units for a total demand of 250 single family houses and 125 apartment units ready for occupancy in 1978. However, since a substantial number of permanent employees are slated to arrive between January 1979 and June 1979, and since no base-

ments can be poured between December and April, at least half of the 750 houses should have the foundations poured in the previous year in order that they may be completed by summer.

The estimated housing demand for 1978 through 1980 is as follows:

Fort McMurray Region

Total Housing Demand Of Permanent Residents

<u>Year</u>	<u>Single Family</u>	<u>Multiple Family</u>
1978 IV	250	125
1979 I	500	250
1979 II	750	375
1979 III	1,000	500
1979 IV	1,250	625
1980 I	1,500	750

At 1974 prices each house will cost approximately 25,000* to build, exclusive of land costs, landscaping, profits, etc. This means an investment of approximately 8.75 million is required to provide housing in 1978 with a further 35 million required in 1979 and 8.75 million in 1980**.

It is obvious that a considerable labour force will be required to construct these houses. To provide the housing required for the fall of 1978 a minimum of 130 skilled tradesmen such as carpenters, bricklayers, painters and the like and 34 unskilled workers will be required. In 1979 it will be necessary to provide 250 new homes every three months and 125 apartment units.

* Average Size of House: 1,041 square feet @ \$24/sq. ft.

** See Appendix .

It is estimated that at least 260 skilled workers and 110 unskilled workers will be required.*** These labour force requirements do not include construction of schools, office buildings, shopping centres, etc. Obviously the influx of these workers will place an additional strain on any community services which do exist at the time.

These figures provide the very least impact of housing requirements for an Oil Sands development and if any of 3,000 construction workers were to require permanent housing the figures would increase significantly.

If the provision of new housing to employees as they arrive is a prime objective, it is obvious that considerable planning must be undertaken. Since it generally requires a 2 year period to undertake engineering design, architectural design, on site servicing and unit construction, it is necessary to complete the planning design phase by the fall of 1976, and the initial site and house construction should be underway by the summer of 1977 to provide finished houses for 1978. The demand and cost data is supplied in the Appendix.

3. Trade

In many of the smaller resource based communities, there is a considerable time lag from the start of an industrial plant until wholesale, retail, and service establishments are developed. We are currently studying the wholesale linkages between Edmonton and northern communities which should contribute to our understanding of the problem. Edmonton is facing increasing competition from Vancouver as a supply source for development in the Northwest Territories, and the study will address itself to this problem.

*** See Appendix.

D. Small Business Financing

1. Private

It is important to realize that smaller enterprises account for a significant proportion of the total economic activity in the Province of Alberta. In the manufacturing sector in 1971, over 93% of all establishments in the Province employed less than one hundred people. These small businesses* provided 50% of all manufacturing jobs, and accounted for 39% of the total value of factory shipments by Alberta manufacturers.¹

Over the next decade small businesses will continue to play an important role in the future growth and development of Alberta, and in particular, in the growth of rural centres in the Province. In the manufacturing sector, the expansion of existing industry and the allocation of new industry will, hopefully, enable smaller centres to develop a long term viable economic base. In the service sector, small business can fill an important gap through the provision of support services in rural centres, such as retail stores, barber shops, eating facilities and the like. In particular, the anticipated rapid expansion of small centres where major industrial projects are to be located will necessitate the creation of a host of new service industries. These new opportunities will have to be further identified and catalogued, so local entrepreneurs may take advantage of them as they arise.

While small business can (and does) play an important role in the economic development of the province, there are serious constraints facing the small businessmen which will likely retard the future development of this sector.

* Defined as those manufacturing establishments with less than one hundred employees.

1. Statistics Canada: 1971 Annual Census of Manufacturers Size of Establishments Preliminary Bulletin, Catalogue No. 31 - 210.

While smaller firms have traditionally experienced difficulty in obtaining adequate financing, it would appear that with the advent of government lending institutions such as the Alberta Opportunity Company, that securing working capital is no longer quite as serious a problem for the smaller firm.

Indeed, it does appear that medium-sized firms, that is those firms requiring loans of \$1,000,000 or greater and with less than two hundred fifty employees, are currently experiencing the greatest difficulty in obtaining funds. These firms, while not significant in number, could nevertheless have quite an impact on the economy, and do provide a significant number of jobs.

Nevertheless, it is obvious that the chartered banks have distributed fairly small amounts of capital to smaller firms. While the banking industry does not document the amount of financial assistance supplied to small, medium and large scale businesses, it is a reasonable inference that the preponderance of small loans, that is the loans under \$100,000 are allocated to relatively small firms. For the period 1962 to 1972 loans under \$1,000,000 have comprised a low and declining proportion of total bank loans to business.

For the above period the number of loans outstanding under \$100,000 has decreased from 32.8% of total loans to 17.9% of total loans. Similarly, the number of loans under 1 million has decreased from 64.8% of total loans in 1962 to 42.5% in 1972.²

The failure of any financial institution to finance high risk ventures is one area in financing where a significant gap remains. It may well be that

2. Bank of Canada Review, April 1973, Table 10.

a small group of potentially successful entrepreneurs have been prevented from becoming a part of the business community because of conservative financing practises on the part of lending institutions. Financial institutions should be encouraged to finance ventures where a greater degree of risk is involved. The inability of smaller firms to obtain venture or equity under reasonable circumstances or at all, has had a detrimental effect on the further development and growth of our industrial sector. [There should be a larger supply of equity capital for small and medium-sized companies, particularly in potential growth industries].

2. Public

Decision makers in government are faced with a limited budget; they cannot carry out all the projects which they consider worthwhile. Because of resource constraints, the decision maker must be selective; he must choose those projects which result in the best use of his budget. Selectivity calls for criteria according which projects can be compared and evaluated and then ranked in order of preference. Evaluation and ranking pose some practical problems for comparison necessitates criteria measurable in numbers.

The Provincial Government of Alberta has many objectives and emphasis on any particular objective may vary from time to time. The Provincial Government's budgetary policy contributes to economic growth and enables the achievement of social, economic and political goals. Budgeting is a decisioning process for determining the range and direction of public objectives and contributes to government's involvement in the economy.

Government expenditure must frequently respond to private decisions.

For example, public investment in schools, roads, sewage systems in some recently developed mining communities. The benefits derived from these private decisions in these areas to invest greatly offset the cost of providing these public services. Conversely, government expenditure may evoke a complementary response by private decision makers. Under both circumstances government expenditure develops entrepreneurial climate to encourage private investment. However, government needs to be selective of those types of investment that it wishes to encourage. Selective criteria are based on the achievement potential of the important objectives. Diversification of the economic base and regional development can be achieved by providing financial assistance to certain types of industries and providing incentives to locate in specific areas.

Traditionally fiscal policy (includes government expenditure) has been chiefly aimed at an adequate rate of economic growth. Lower levels of unemployment are achieved mainly by co-operating with Federal programs. Alberta needs an industrial strategy to promote economic growth. However, a financial strategy, which will decide on the allocation of scarce and reasonably well defined inputs to attain objectives that range from well to ill defined, will influence the success of the industrial strategy.

V. RECOMMENDATIONS

V. Recommendations

The problem areas have been identified which could constrain our future growth and development. The following recommendations should be considered.

- a) All companies proposing to develop 'major' projects should be required to submit a detailed list of their manpower requirements during construction and operating phases. The information on location, extent and duration of shortages should assist industry and government officials in developing contingency plans including the scheduling of projects if conflicts are anticipated
- b) All companies proposing to develop 'major' projects should be required to submit a detailed list of their material requirements, especially steel, cement and glass so that the impact of shortages can be minimized.
- c) Transportation corridors should be developed to encourage further development and diversification on a regional basis.
- d) Housing requirements should be met before any large influx of persons is encouraged into an undeveloped area.
- e) More incentives for wholesale, retail, and service establishments should be provided soon after a major project is proposed in undeveloped areas.
- f) Health and social services should be provided at the same time any major project is being constructed.

- g) Counselling and financial assistance programs should be provided for small businesses.
- h) Tax incentives should be used to encourage regional development and further diversification.

The next step is to apply some of these recommendations to specific sectors and the strategy. The rest of the report will address itself to some of the characteristics of five industry groups for which preliminary strategies have been formulated.

VI AGRICULTURAL PROCESSING

DEVELOPMENT STRATEGY

Agricultural Processing Development Strategy

The Food and Beverage Industry in Alberta while representing a wide range of food products, is essentially still dominated by first stage processing of the principal agriculture resources, mainly livestock, grains and oilseeds.

The Meat Industry in Alberta is fairly large and even though a wide range of processed meat products are produced, the bulk of the industry shipments consist of fresh and frozen beef and pork. The processing that takes place in the Province is geared mainly towards meeting the requirements of the local market. There is a considerable scope for further expansion in downstream processing of meat products to include items such as canned meats, primal cuts, hamburger patties and pre-cooked ready-to-serve meals.

In the processing of grains also, activities are limited to some milling and manufacture of only a few of the flour-based food products. In 1972, for instance, Statistics Canada has listed 170 establishments in the category "Baking Products Industries" of which 168 were classified as bread manufacturers and the remaining 2 as biscuit manufacturers.

The Alberta Department of Agriculture is actively involved in the promotion of additional processing of agricultural resources, however, because of the diverse nature of the industry it is impossible to develop a single all encompassing strategy.

There are some major constraints to the development of a diversified food products industry in Alberta. In the meat industry for instance there are 3

large firms accounting for the major part of the slaughtering and packing activity. The extent of their processing activity in the Province is largely determined by the transportation cost of shipping finished versus semi-processed meat. This results in a locational specialization in slaughtering and meat packing in Alberta.

Our major goal is to promote development of the food products industry through indigenous businesses. As the Government policy is to promote local businesses, the ability of local or small businesses to successfully sell its products in distant and larger markets needs careful examination. Small firms find it difficult to cope with some of the constraints such as marketing expertise, financial resources and competitiveness. Any development that takes place in the food products industry will have to be based on markets other than provincial and regional.

While theoretically the prospects in Alberta for developing the food products industry are limitless, considerable work has still to be done in order to identify and define opportunities which are viable and complement government objectives of regional development, diversification and promotion of small businesses within the Province.

VII COAL DEVELOPMENT STRATEGY

COAL DEVELOPMENT STRATEGY

As of the end of 1973, 19 coal mines were operating in Alberta, producing bituminous and subbituminous coal. The total shipments of coal from these mines in 1973 was 9.4 million tons. The industry is characterized by a division into 8 large mining operations which produce 8.5 million tons per year or more, and which account for 98.5% of Alberta's total coal production, and numerous very small operations which in 1973 produced, on the average, about 14,000 tons.

Alberta's total coal production in 1973 was split between 4.46 million tons of bituminous coal and 4.94 million tons of subbituminous coal. The bituminous coal was produced by 4 large mining operations in the inner foothills region of the province. Its disposition was almost entirely in the export market with 3.8 million tons being shipped to Japan and .2 million tons to the United States. At its destination this coal is used to produce coke which, in turn, is used to make steel. 90,000 tons of bituminous coal was shipped to other provinces, mainly Manitoba, and .3 million tons of middlings from the cleaning plants were used as a fuel to generate electricity in Alberta.

Of Alberta's subbituminous coal production, 4.7 million tons, or 97% came from 4 large operations, each of which fuels a mine-mouth thermal electricity generating plant. Thermal electricity generating plants in Alberta consumed 4.9 million tons of coal in 1973, all of which was mined in Alberta, and 4.6 million tons of which came from the 4 large operations. About 121,000 tons of Alberta's subbituminous coal was moved to other provinces, mainly the

other three western provinces. None of it was exported from Canada.

The disposition of Alberta's total coal production is summarized by the first diagram in Appendix VI. Of the total shipments from Alberta's mines, 4.1 million tons were exported to other countries, .2 million tons were shipped to the rest of Canada, 4.9 million tons were consumed by electricity generating plants in Alberta and .2 million tons were used for residential, commercial and industrial purposes in Alberta.

In the next ten years the markets for Alberta's coal will probably permit an increase in production to about 28.4 million tons per year. No firm statement can be made on the total number of new mines, both large and small, that will be opened, but it is most likely that most of the increase in production

The probable disposition of Alberta's coal production in the mid-1980's is summarized in the second diagram. Annual exports of metallurgical coal will probably increase by at least 2 million tons by 1984. It is very likely that steel mills and electric utilities in Central Canada will demand at least 5 million tons per year of Alberta's coal. In Alberta 2 new electricity generating plants will probably be in operation by 1984, both of which will be fueled with coal. They will probably increase coal consumption for this purpose in Alberta by 7 million tons to a total of 12 million tons per year. Trans Canada Pipelines has announced its tentative plans for a coal gasification plant in either Alberta or Saskatchewan. If located in Alberta this plant would require 5 million tons of coal per year. The demand for Alberta's coal for residential, commercial and industrial purposes will probably remain about the same.

There are several possibilities for industrial development in Alberta based on the upgrading of Alberta's coal. These are summarized briefly in the third diagram. One possibility is to carbonize bituminous coal to produce coke and several other chemicals, including benzene. The coke and chemicals can, in turn, be used to make steel by the traditional blast furnace method. The benzene and other chemicals that are produced by the carbonization can be further upgraded into a variety of chemical products.

The raw coal may also be used for the generation of electricity. This electricity, may be consumed in Alberta, or it could be moved via a grid system to areas outside of Alberta.

A third possibility is to gasify the coal. The resulting gases may be methanated and then used for residential heating or pre-methanations components of the gas, mainly hydrogen and carbon monoxide, may be used to produce a variety of other chemicals, most notably, methanol and ammonia.

VIII FOREST INDUSTRIES DEVELOPMENT

STRATEGY

FOREST INDUSTRY STRATEGY

A. Linkages

The primary forest resource commodity group consists to a large extent of the following two components: logs and bolts, and pulpwood. Logs and bolts constitute a dominant part of the input commodities required by the sawmills and veneer and plywood industries forming more than half of the total intermediate inputs required. According to our definition of resource dependent industries, those two industry groups qualify as first order dependent industries in relation to the forest resource industry, however most of the output from our sawmills is exported in the form of dimension lumber which is a leakage from the system, rather than going into an associated industry such as furniture and fixtures. At the same time we import commodities such as sheathing boards, insulation boards, and decorative boards.

There are no third order dependents in Alberta since we have no paper mills and all of our pulp is exported.

The following industries rely directly on the paper industry and rank as fourth order dependents: paper converting, paper box and bag, and printing and publishing. Since we have no paper industry, this group must rely on imported papers. In order to strengthen all the forward linkages the addition of paper mills would seem desirable, although their viability has not been established yet.

There are a number of industries which are large consumers of forest products even though these products constitute only a small portion of all

intermediate inputs necessary. The most important backward interindustry linkages are the residential construction industry, the non-residential building construction, and the repair construction industries.

An increase in the demand for paper products will have the largest impact on total domestic output compared with other forest industry products. In the paper cartons industry the additional impact on the industry of origin is higher than all other groups combined. An increase in demand for pulpwood chips, lumber and sawmill products will have a relatively high impact on total domestic output, while an increase in demand for these plus veneer and plywood will yield the smallest relative additional impact on the industry of origin.

In general, an increase in demand in any of the forestry resource products will exercise a significant impact on gross domestic product in the transportation and storage, the trade and finance, and the insurance and real estate groups. The additional demand for pulp and paper products will also induce an increase in gross domestic product in the utilities industry group, and the industrial chemicals group. The direct impact on the forestry resource industry diminishes the more a commodity group is processed. The highest impact on gross domestic product is generated by an increased demand for paper products and wooden containers. The linkages are illustrated in Appendix VII.

B. Development Policies

There is a need to strengthen the existing forward and backward linkages within the industry and establish new ones where gaps exist. We

have sawmills, planer mills, veneer mills, and pulp mills in widely scattered locations which pose transportation problems. It is acute in the flow of chips from sawmills to pulp mills. We are, therefore, trying to move towards further integration of the industry.

We are trying to promote further processing of our resources prior to export. This problem is relevant in the case of our pulp, all of which is exported. The goal here is to try and determine whether paper manufacturing facilities in the Province would be viable. This is tied in with further utilization of residuals in the manufacture of by-products, such as particle-board. Here again we need to have a sufficient concentration of sawmills that can provide the raw materials for the secondary manufacturers.

We are trying to develop new overseas markets for our lumber products so that our producers won't be quite so vulnerable to price fluctuations in the United States, which is where about 70 per cent of our lumber is shipped. In the same context most of our mills produce only studs so they are extremely dependent on one item.

The industry is dominated by small and medium sized firms which are not always the most efficient scale of operation from the resource utilization or industry development point of view. We are trying therefore, to strike a balance with controlled entry of large scale firms.

Manpower is a constant problem for mills which tend to be located in small isolated communities. If we are going to maintain stable labour forces we must have the full profile of community services to attract them.

An interdepartmental task force is being established, which will review all the resource oriented and market oriented factors at play. New developments will be tied in with Aspen utilization and chip production as a means of fulfilling our resource and industry goals. Location plays an important part in the overall rationalization of our industry, and we are proceeding with measures that will ensure a continued viable presence.

C. Investment Opportunities

There is an opportunity for one or two more pulp mills in the northern half of Alberta. An agreement area has been mapped out around Ft. McMurray and we have expressions of interest from a number of companies. The problem of another major construction project in that area at the time the tar sands plants are being built is not fully apparent, so we are not enthusiastic at this time.

The Peace River area would be suitable for a pulp mill although it is largely underdeveloped in terms of road networks which will add to the company's costs.

We can see certain advantages to locating a pulp mill in the Athabasca-Smith region based in part on chips from the Lesser Slave Lake area. There is sufficient water and rail facilities to support a small Kraft mill with a rated annual capacity of 400 tons per day. A chip supply of 20 M.B.D.U.'s could be obtained from Federated Cooperatives Ltd., and Urchyshyn Lumber Ltd., which had a combined total production of 51 MMFBM in 1973, plus some smaller mills in the area. A mixed species operation could be established

using poplar or crown forests to the south and east.

Future developments will include legislation and procedures which will enable more detailed and sophisticated planning so that high resource value areas are identified. Forest management practises will be modified to improve the integration of uses on forest lands and to minimize the above environmental effects.

The forest industry projects on the drawing board should not be constrained by resource or capital availability, although manpower, materials and undeveloped infrastructure pose development problems. Most of the projects should enhance regional development, basic industry development, and to a lesser degree diversification, but they are not likely to contribute to self-sufficiency or small business promotion.

IX METAL INDUSTRY DEVELOPMENT STRATEGY

IX Metal Industry Development Strategy

The Metal Industries are a key element in Alberta industrial growth. Steel and Steel products are essential components for the building and construction of all industry sectors. The existing metal industry is heavily linked with the construction and capital goods industry. Short and intermediate term policies are aimed at strengthening this linkage so that the existing industry can fully benefit from the current surge of investment. Longer term policies are directed towards diversification of the industry into consumer and industrial products requiring more fabrication, greater technical sophistication, more value added.

In order to allow the existing metal fabrication industry in Alberta to provide maximum participation in the development of such sectors as the oil sands, fertilizer industry and the petrochemical industry, the immediate supply of all types of steel must be increased. However, these increased supplies must be available at competitive prices. One example of measures taken in this regard is the recent purchase by the Alberta Government of an equity position in the Inter-Provincial Steel Company (IPSCO).

A longer term objective is to increase the local supply of finished steel, by expanding existing plants, the development of new steel mills or the establishment of finishing mills using imported raw steel. Currently the Peace River iron deposits are under examination to determine their possible

role in the development of additional steel making capacity in Alberta. Other possible sources of iron ore and steel are also under active examination.

The future development of Alberta will require a long term supply of reasonably priced raw steel. Current investment plans call for the establishment of a cold rolling mill and galvanizing plant, and the expansion of pipe mills. Other future facilities could include additional wire mill capacity and some form of alloy steel facility. Coupled with the development of basic steel capacity is the need to expand the foundry industry. An increase in both steel and iron foundry capacity is urgently required to supply the metal fabricating industries with component parts.

The work of the Department will be to indentify and encourage development of viable product lines that will (a) strengthen and expand existing industries, (b) encourage the diversification of the metal fabricating industry, and (c) introduce new consumer oriented industries into the Province.

X PETROCHEMICAL STRATEGY

primary petrochemicals outside of Alberta (e.g. ethylene and benzene).

b) Freight Rates

Negotiate equitable rail freight rates to Vancouver and Eastern Canada so that rail shipments from all parts of Canada are based on cost of service, not what the market will bear.

c) Tariffs

Strive for international tariff harmonization in petrochemical trade.

d) Competition

Obtain Federal agreement that imported crude oil will not be subsidized as feedstock for new petrochemical developments in Eastern Canada.

Reach an accommodation with other Provinces to emphasize development of secondary industry primarily in their areas of natural resource advantage.

IV. Feedstocks

Allocate the hydrocarbon raw materials to specific petrochemical products to make best use of the resource:

a) Pentanes-plus should be withdrawn from export markets and allocated to petrochemicals (e.g. aromatics)

b) Some portion of naphtha from new refineries and oil sands plants should be dedicated to petrochemicals.

Consider the construction of an entire crude oil refinery or oil

sands plant as a feedstock refinery for petrochemicals (e. g. Petrosar)

· Re-evaluate the crude oil production rate over the next five years

to ten years to ensure sufficient Alberta reserves will be available for

local fuel and petrochemical uses until oil sands plants can be brought onstream with adequate capacity for Alberta's future needs.

V Stability

· Guarantee hydrocarbon feedstock supply for an adequate period (perhaps 20 years) to all approved primary petrochemical projects.

· Ensure long-term stability and honouring of commitments to industry with respect to regulations affecting plant operations.

VI Ownership and Control

· Encourage equity participation by Albertans (perhaps via the Alberta Energy Company).

APPENDIX I

PROPOSED PROJECTS

PROJECTS UNDER CONSTRUCTION

IN THE FIRST SIX MONTHS OF 1974

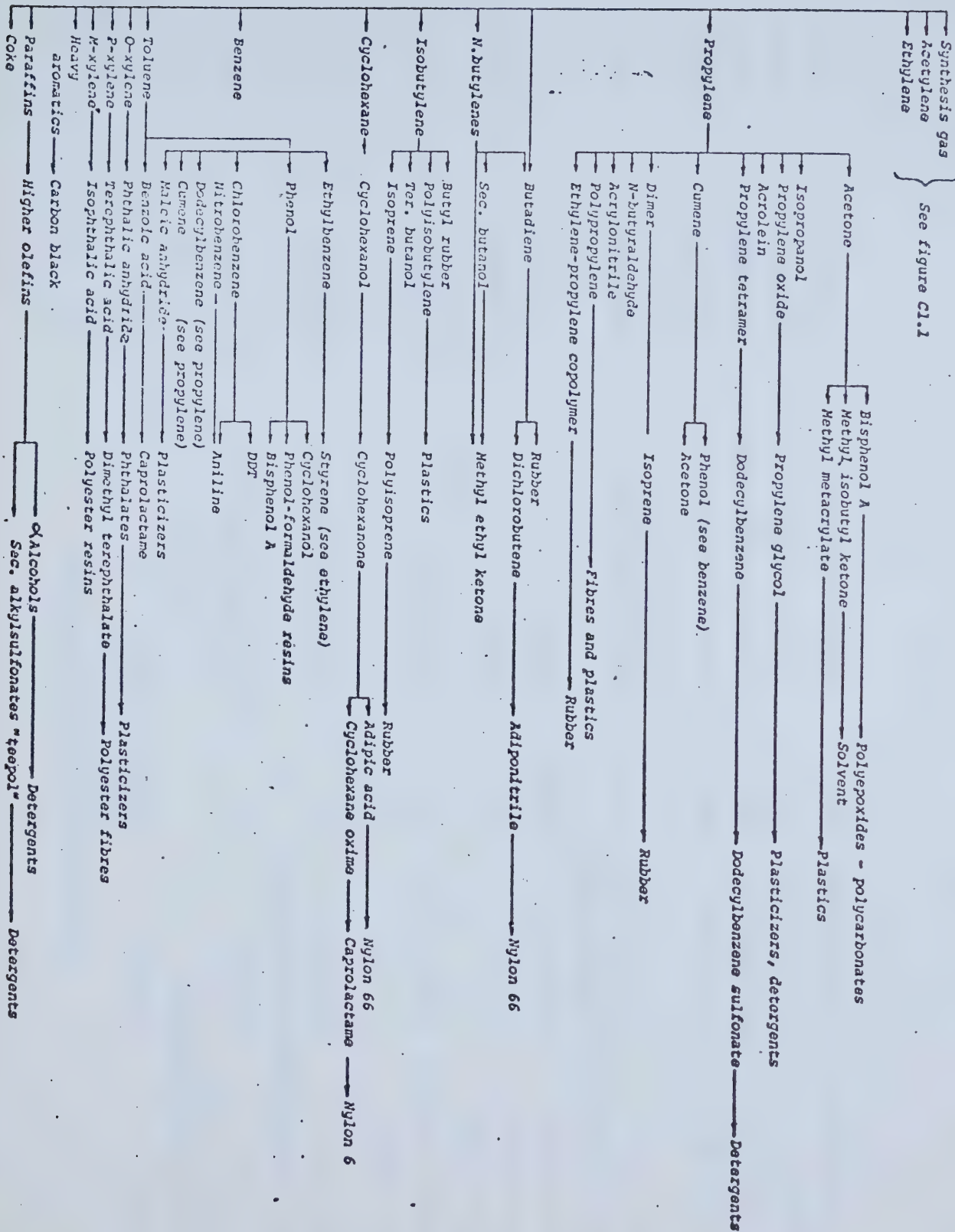
<u>Company Name</u>	<u>Location</u>	<u>Additional Employment Created</u>	<u>Type of Project</u>	<u>Total Capital Cost</u>	<u>Projected Completion Date</u>
<u>Central - Agricultural Processing</u>					
Lamb Processors Co-op Ltd.	Innisfail	35	Lamb Processing Plant	\$ 800,000	December 1974
Scardillo Bros. Ltd.	Wetaskiwin	16	Specialty Cheese Plant	\$ 620,000	Summer 1975
United Grain Growers	Lloydminster	100	Rapeseed Crushing Plant	\$ 15,000,000	
<u>Central - Manufacturing</u>					
Agriplast Ltd.	Camrose	26	Plastic Products	\$ 3,000,000	August 1974
Cal-Crete Ltd.	Innisfail	12	Concrete Products	\$ 140,000	September 1975
Canada Cement LaFarge Ltd.	Exshaw	60	Cement Manufacturing	\$30,000,000	December 1974
Homco	Camrose	140-200	Mobile Homes	\$ 2,000,000	February 1975
Nelson Manufactured Homes	Lloydminster	40	Prefabricated Homes	\$ 750,000	July 1974
Specialty Metal Crafts Ltd.	Blackfalds	10	Filing Cabinets	\$ 300,000	August 1974
Superior Emergency Ltd.	Red Deer	18-20	Prefabricated Fire Engines and Ambulances	\$ 430,000	
<u>Central - Forestry</u>					
Revelstoke Lumber Co. Ltd.	Sundre	4	Telephone Pole Plant	\$ 150,000	October 1974
Spray Lakes Sawmill Ltd.	Cochrane	10	Telephone Poles, Fence Posts	\$ 120,000	December 1974
<u>Central - Mining</u>					
Canmore Mines Ltd.	Canmore	30-50	Coal Mine	\$ 500,000	
Luscar Coal Ltd.	Cardinal River	200	Coal Mine	\$ 8,600,000	Spring 1975

<u>Company Name</u>	<u>Location</u>	<u>Additional Employment Created</u>	<u>Type of Project</u>	<u>Total Capital Cost</u>	<u>Projected Completion Date</u>
<u>Manufacturing con't.</u>					
Flame Master	Edmonton	25	Residential & Commercial Furnaces	\$ 500,000	July 1974
Gendall Industries Ltd.	Edmonton	9	Trusses for Mobile Homes	\$ 140,000	July 1974
Jasper Printing	Edmonton	5	Commercial Printing	\$ 275,000	August 1974
Lebatt's Alberta Brewery	Edmonton	16	Brew House and Power House Addition	\$ 3,000,000	March 1975
Martin-Black Wire Ropes of Canada Ltd.	Edmonton	20-30	Wire Rope Plant	\$ 1,000,000	July 1974
Superior Steel Desk Ltd.	Edmonton	0	Expansion of Metal Furniture Manufacturing Plant	\$ 300,000	Sept. 1974
Titan Foundry Ltd.	Edmonton	7	Cast Iron Soil Pipes & Fittings	\$ 190,000	December 1974
A. M. F. Tuboscope Inc.	Edmonton	5-7	Internal Plastic Coating of Oilfield Tubular Goods	\$ 200,000	June 1975
Western Truck Body Manufacturing Ltd.	Edmonton	20	Truck Body Manufacturing Plant	\$ 500,000	Nov. 1, 1974
<u>Edmonton - Petroleum & Petrochemical Products</u>					
Canadian Liquid Air Ltd.	Edmonton	4	Nitrogen Plant	\$ 1,500,000	August 1974
Imperial Oil Ltd.	Edmonton	60-80	Refinery	\$200,000,000	April 1975
<u>Edmonton - Other</u>					
Edmonton Power	Edmonton	12	Lampton Sub Station	\$ 500,000	
Edmonton Power	Edmonton	28	Thermal Power Plant(Clover Bar)	\$ 45,000,000	

<u>Company Name</u>	<u>Location</u>	<u>Additional Employment Created</u>	<u>Type of Project</u>	<u>Total Capital Cost</u>	<u>Projected Completion Date</u>
<u>North West - Mining</u>					
McIntyre Porcupine Mines Ltd.	Grande Cache	90	Expansion of Strip Mine	\$ 10,000,000	Fall 1974
<u>Other</u>					
Calgary Power	Lake Wabamun	80 - 100	Expansion of Power Plants (Wabamun and Sundance)	\$290,000,000	1977
<u>North East - Agricultural Processing</u>					
Highland Produce Ltd.	Two Hills	22	Expansion of Egg Processing Plant	\$ 550,000	N/A
<u>North East - Manufacturing</u>					
Sherritt Gordon Mines Ltd.	Fort Saskatchewan	8-10	Sulphuric Acid Plant	\$3,000,000	Aug. 1974
<u>North East - Petroleum & Petrochemical Products</u>					
Syncrude Canada Ltd.	Mildred Lake (near Ft. McMurray)	1,650	Synthetic Crude Oil Plant & Power Plant	\$900,000,000	Mid-1976
<u>Edmonton - Agricultural Processing</u>					
Burns Food Ltd.	Edmonton	100	Expansion of Meat Packing Plant	\$4,000,000	1976
Facchin Foods Ltd.	Edmonton	10	Dry Pasta Processing Plant	\$ 500,000	Sept. 1974
<u>Edmonton - Manufacturing</u>					
Aluminum Company of Canada Ltd.	Edmonton	15-20	Coke Calcining Plant	\$7,000,000	1975
The Edmonton Journal	Edmonton	13	Printing Plant	\$3,000,000	Aug. 1974
Fiber Glas Canada Ltd.	Edmonton	70	Fiberglass Manufacturing	\$7,000,000	Sept. 1974

PROJECTS UNDER CONSTRUCTION IN THE FIRST 6 MONTHS OF 1974

<u>Company Name</u>	<u>Location</u>	<u>Additional Employment Created</u>	<u>Type of Project</u>	<u>Total Capital Cost</u>	<u>Projected Completion Date</u>
<u>North West - Agricultural Processing</u>					
Alfa - Cube Barrhead Ltd.	Barrhead	35	Alfalfa Processing Plant	\$1,000,000	Oct. 74
Legal Alfalfa Products	Legal	22-24	Alfalfa Cubing & Pelletizing Plant	\$1,000,000	N/A
Mid-Sun Peat Moss Products	Peace River	25	Peat Moss Plant	\$ 300,000	N/A
Northern Alberta Agribusiness Ltd.	Falher	45-50	Alfalfa Pelletizing Plant	\$2,000,000	Sept. 74
Northern Alberta Rapeseed Processing Ltd.	Sexsmith	60	Rapeseed Processing Plant	\$ 14,000,000	N/A
Wanham & District Alfalfa Processors Cooperative Ltd.	Wanham	20-22	Alfalfa Cubing & Pelletizing Plant	\$1,000,000	N/A
<u>North West - Forestry</u>					
Alberta Aspen Board Ltd.	Slave Lake	380	Flakeboard Plant	\$5,834,000	Summer 1975
Buchanan Lumber Ltd.	High Prairie	35	Sawmill and Chipper	\$1,000,000	July 1974
Imperial Lumber Ltd.	Barrhead	30	Sawmill	\$3,000,000	Early '75
Simpson Timber Co. Ltd.	Whitecourt	200	Sawmill, Laminated Beam Mill & Fibreboard Mill	\$ 14,000,000	1980
<u>North West - Manufacturing</u>					
Paddy's Welding and Construction Ltd.	Whitecourt	28	Metal Fabricating & Machine Shop	\$ 445,000	Oct. '74



PROJECTS PROPOSED AS OF JUNE 30, 1974

<u>Company Name</u>	<u>Location</u>	<u>Additional Employment Created</u>	<u>Type of Project</u>	<u>Total Capital Cost</u>	<u>Projected Completion Date</u>
<u>North West - Agricultural Processing</u>					
Stony Plain Seed Cleaning Assoc.	Stony Plain	4	Seed Cleaning Plant	\$ 150,000	N/A
<u>North West - Petroleum & Petrochemical Products</u>					
Shell Canada Limited	Peace River	60	Test Facilities for Synthetic Crude Oil	\$23,000,000	N/A
<u>North West - Mining</u>					
Foothills Sand & Gravel Ltd.	Grande Prairie	15	Sand & Gravel	\$ 486,000	N/A
<u>North West - Forestry</u>					
Fox Creek Lumber Ltd.	Fox Creek	168	Sawmill	\$ 5,180,000	N/A
Swanson Lumber Co.	High Level	60-100	Sawmill	\$ 6,000,000	N/A
<u>North East - Petroleum & Petrochemical Products</u>					
Dow Dome & Others	Fort Saskatchewan	3,900	Ethylene Plant, Pipeline Manufacturing Plant & Styrofoam Plant	\$500,000,000 +	1979
Home Oil Co. Ltd.	Fort McMurray	1295	Synthetic Crude & Sulphur Plant	\$955,600,000	1982
Petrofina Canada Ltd.	Fort McMurray	1700	Synthetic Crude Extraction Plant	\$850,000,000	1982
Shell Canada Ltd.	Fort McMurray	1500	Synthetic Crude Extraction Plant	\$750,000,000	1980
Sherritt Gordon Mines Ltd.	Fort Saskatchewan	130	Ammonia and Urea Plant	\$ 70,000,000	1977

<u>Company Name</u>	<u>Location</u>	<u>Additional Employment Created</u>	<u>Type of Project</u>	<u>Total Capital Cost</u>	<u>Projected Completion Date</u>
<u>North East - Mining</u>					
S.I.L. Silica Ltd.	Bruderheim	12	Silica Sand	\$100,000 - 150,000	Late 1974
<u>Edmonton - Agricultural Processing</u>					
Alberta Wheat Pool	possibly county of Strathcona	60-65	Rapeseed Crushing Plant	\$ 11,000,000	Jan. 1976
<u>Edmonton - Manufacturing</u>					
IPSCO	possibly Edmonton area	20	Structural Steel Mill	\$ 1,000,000	N/A
IPSCO	possibly Edmonton area	85	Cold Rolling & Galvanizing Mill	\$ 5,100,000	N/A
IPSCO	Edmonton	110	Addition of Two Pipe Mills (Spiral Weld)	\$ 3,000,000	N/A
<u>Edmonton - Petroleum & Petrochemical Products</u>					
Alpec Consortium	Edmonton	1,500	Ethylene Complex	\$500,000,000 +	1977
<u>Central - Agricultural Processing</u>					
Big Country Meats	Olds	N/A	Meat Processing Plant	N/A	Oct. 1975
Bronson Enterprises Ltd.	Entrance	5	Specialty Cheese	\$ 170,000	N/A
Hussar Cooperative Seed Cleaning Association	Hussar	0	Seed Cleaning Plant	\$ 150,000	N/A



PROJECTS PROPOSED AS OF JUNE 30, 1974

<u>Company Name</u>	<u>Location</u>	<u>Additional Employment Created</u>	<u>Type of Project</u>	<u>Total Capital Cost</u>	<u>Projected Completion Date</u>
<u>Central - Other</u>					
Alberta Power Ltd.	Battle River	17	Power Plant	\$51,000,000	1975
<u>Calgary - Agricultural Processing</u>					
Alberta Poultry Marketers	Calgary	15	Chicken Hatchery	\$ 375,000	Late 1974
XL Beef Packing Ltd.	Calgary	50	Beef Slaughtering	\$ 800,000	October 1974
<u>Calgary - Manufacturing</u>					
Arrow Steel Industries	Calgary	10	Structural & Ornamental Steel Products	\$ 800,000	Oct. 1974
Firestone Tire & Rubber Co.	Calgary	100 - 120	Tire Manufacturing	\$8,000,000	June 1975
J. S. Nielsen Construction Ltd.	Calgary	15	Concrete Products	\$ 100,000	Sept. 1974
Prudential Steel	Calgary	140	Structural Tubing	\$3,500,000	Dec. 1974
Stearns - Rogers Ltd.	Calgary	15	Oilfield Equipment	\$ 250,000	Dec. 1974
Supreme Windows Ltd.	Calgary	5	Aluminum Windows	\$ 160,000	Oct. 1974
Western Canada Steel Ltd.	Calgary	0	Steel Products	\$1,000,000	Fall 1975
<u>South West - Manufacturing</u>					
Glascon Industries Ltd.	Lethbridge	5	Fiberglass Products	\$ 208,000	Sept. 1974
North Lethbridge Mo-Tires Ltd.	Lethbridge	3	Tire Retreading Plant	\$ 250,000	Aug. 1974
<u>South East - Agricultural Processing</u>					
Alberta Bean Growers Ltd.	Bow Island	6	Bean Processing Plant	\$ 387,000	Sept. 1974
Klemen Kustom Kill Ltd.	Taber	20	Meat Packing Plant	\$ 450,000	Oct. 1974

<u>Company Name</u>	<u>Location</u>	<u>Additional Employment Created</u>	<u>Type of Project</u>	<u>Total Capital Cost</u>	<u>Projected Completion Date</u>
<u>South East - Manufacturing</u>					
R. L. Crain	Medicine Hat	35	Business Forms	\$ 1,500,000	Jan. 1975
<u>South East - Petroleum & Petrochemical Products</u>					
Alberta Gas Chemicals Ltd.	Medicine Hat	65	Methanol Plant	\$ 19,000,000	Oct. 1974
Alberta Gas Chemicals Ltd.	Medicine Hat	75	Methanol Plant	\$ 22,000,000	Sept. 1975

The total dollar value of Projects Under Construction

During the First Six Months of 1974 is \$1,693,924,000

The total number of permanent jobs to be created is 4,596

<u>Company Name</u>	<u>Location</u>	<u>Additional Employment Created</u>	<u>Type of Project</u>	<u>Total Capital Cost</u>	<u>Projected Completion Date</u>
<u>South East - Agricultural Processing</u>					
Brooks Seed Processors Ltd.	Brooks	12	Seed Processing & Cleaning Plant	\$ 750,000	N/A
Rosemary Cubers Ltd.	Rosemary-Duchess	3-8	Hay Cubing & Dehydrating Plant	\$ 100,000	N/A
<u>South East - Manufacturing</u>					
Kustom Koach Alberta Ltd.	Medicine Hat	40-50	Trailer Manufacturing Plant	\$ 100,000	N/A
<u>South East - Petroleum & Petrochemical Products</u>					
Alberta Ammonia Ltd.	Raymond	225-250	Ammonia Plant	\$400,000,000	N/A
Alberta Gas Chemicals Ltd.	Medicine Hat	105	Ammonia - Urea Plant	\$100,000,000	N/A
Cancarb Ltd.	Medicine Hat	42	Carbon Black	\$ 5,600,000	N/A
Pan Canadian Petroleum	Brooks	50	Ammonia Plant	\$ 45,000,000	N/A
Western Coop Fertilizers Ltd.	Medicine Hat	200	Ammonia-Urea Plant	\$ 80,000,000	1976
The total dollar value of Projects Proposed During the					
First Six Months of 1974 is					
				\$4,503,688,000	
The total number of jobs to be created is				12,530	

<u>Company Name</u>	<u>Location</u>	<u>Additional Employment Created</u>	<u>Type of Project</u>	<u>Total Capital Cost</u>	<u>Projected Completion Date</u>
<u>Agricultural Processing con't.</u>					
Wetaskiwin Seed Cleaning Association	Wetaskiwin	4	Seed Cleaning Plant	\$ 250,000	N/A
<u>Central - Manufacturing</u>					
Tree Island Steel Co. Ltd.	Nisku	75	Steel Wire	\$4,000,000	N/A
<u>Central - Mining</u>					
Manalta Coal Ltd.	Gregg River	380-450	Coal Mine	\$60,000,000	N/A
<u>Calgary - Manufacturing</u>					
Westmills Carpets	Calgary	200	Carpet Manufacturing	\$3,500,000	N/A
<u>South West - Manufacturing</u>					
Com-Pac Foods Ltd.	Lethbridge	48	Frozen Food Manufacturing	\$1,500,000	July 1975
Dresser Industries Ltd.	Lethbridge	80-200	Manufacturing Gas Turbines & Turbine Driven Gas Compressors	\$8-9,000,000	N/A
Sunburst Ceramics Ltd.	Lethbridge	17	Expansion of Ceramic Plant	\$ 902,000	N/A
<u>South West - Petroleum & Petrochemical Products</u>					
Cominco Ltd.	25 mi. east of Calgary	150	Ammonia and Urea Plant	\$112,000,000	Late 1976

APPENDIX II
HOUSING DEVELOPMENT

APPENDIX II

HOUSING DEMAND

<u>Year</u>	<u>Basic Employees</u>		<u>Non-Basic Employees</u>	
	<u>Houses</u>	<u>Apts. or Other</u>	<u>Houses</u>	<u>Apts. or Other</u>
1978	200	50	50	75
1979	800	200	200	300
1980	200	50	50	75

COST OF HOUSING

<u>Housing</u>		<u>Apt. and Others</u>	
1978	120 @ 25,000 = 6.25 million	125 @ 20,000 = 2.5 million	
1979	1,000 @ 25,000 = 25 million	500 @ 20,000 = 10 million	
1980	1,000 @ 25,000 = 6.25 million	125 @ 20,000 = 2.5 million	
	37.5	15.	
Total Cost	1978 = <u>8.75 million</u>	1979 = <u>35 million</u>	1980 = <u>8.75 million</u>

	1978	1979	1980
Cost of Labour	1.58 million	6.3 million	1.58 million
Cost of Materials	3.32 million	13.3 million	3.32 million

HOUSING DEMAND BY EMPLOYEES

YEAR	<u>Basic Employees</u>		<u>Non-Basic Employees</u>	
	<u>Single Family</u>	<u>Multiple Family</u>	<u>Single Family</u>	<u>Multiple Family</u>
1978	200	50	50	75
1979 I	400	100	100	150
1979 II	600	150	150	225
1979 III	800	200	200	300
1979 IV	1000	250	250	375
1980 I	1200	300	300	450

Total Housing Demand

Permanent Residents 1978-80

YEAR	<u>SINGLE FAMILY</u>	<u>INCREMENT</u>	<u>MULTIPLE FAMILY</u>	<u>INCREMENT</u>
1978	250		125	125
1979 I	500	250	250	125
1979 II	750	250	375	125
1979 III	1000	250	500	
1979 IV	1250	250	625	125
1980 I	1500	250	750	125

APPENDIX III

NUMBER OF SKILLED CONSTRUCTION
WORKERS BY OCCUPATION REQUIRED
TO COMPLETE 250 HOURS IN A THREE
MONTH PERIOD

NUMBER OF SKILLED CONSTRUCTION
WORKERS BY OCCUPATION REQUIRED
TO COMPLETE 250 HOUSES IN A THREE
MONTH PERIOD *

<u>OCCUPATIONAL GROUP</u>	<u>NO. OF MEN REQUIRED</u>
Carpenters	132
Painters	28
Brick Layers	21
Plumbers	16
Cement Finishers	9
Electricians	11
Plasterers & Lathers	7
Sheet-Metal Workers	5
Roofers	3
Operating Engineers	7
Tile Setters	5
Soft-Floor Layers	2
All other skilled trades	12
Labourers	53
Helpers	52
Truck Drivers and Misc.	2
Supervisory Staff	11
TOTAL	374

SOURCE : Lakey R.E. ; Employment Impact of Construction in Canada:
Some Preliminary Evidence.

OTTAWA : Department of Manpower and Immigration July 1973.
Tables 7 & 8 .

* : on site construction only.

Methodology for Housing Labor Force

Table 8

65 man hours / 100 sq. ft. on site construction

Our average home = 65 x 1,041 sq. ft. = 676.6 man hours

676.6 / 7.5 = roughly 90 days / house

Example: Carpenters

No. of Carpenters required

Distribution 34.9%

$34.9 \times 676.6 = 236.1$ man hours $\div 7.5 = 31.4$ man days per house

Houses per month $31.4 \div 20 = .63$

In four months $.63 \times 4 = 2.5$ houses

For two hundred houses approx. 80 carpenters would be needed.

$200 \div 2.5 = 80$

APPENDIX IV

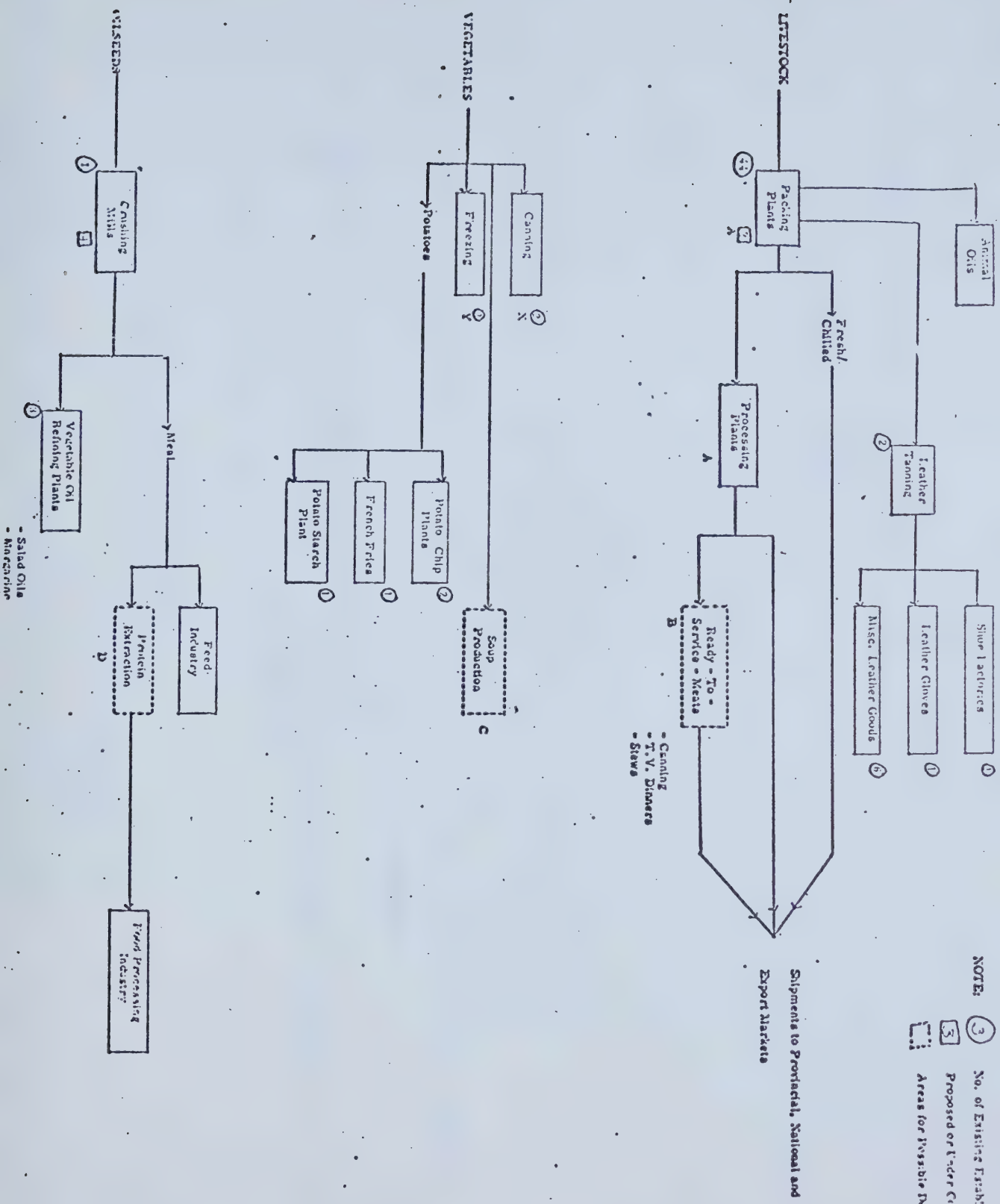
OIL SANDS PROJECT
MANPOWER REQUIREMENTS

APPENDIX IV
OIL SANDS PROJECT
MAN POWER REQUIREMENTS

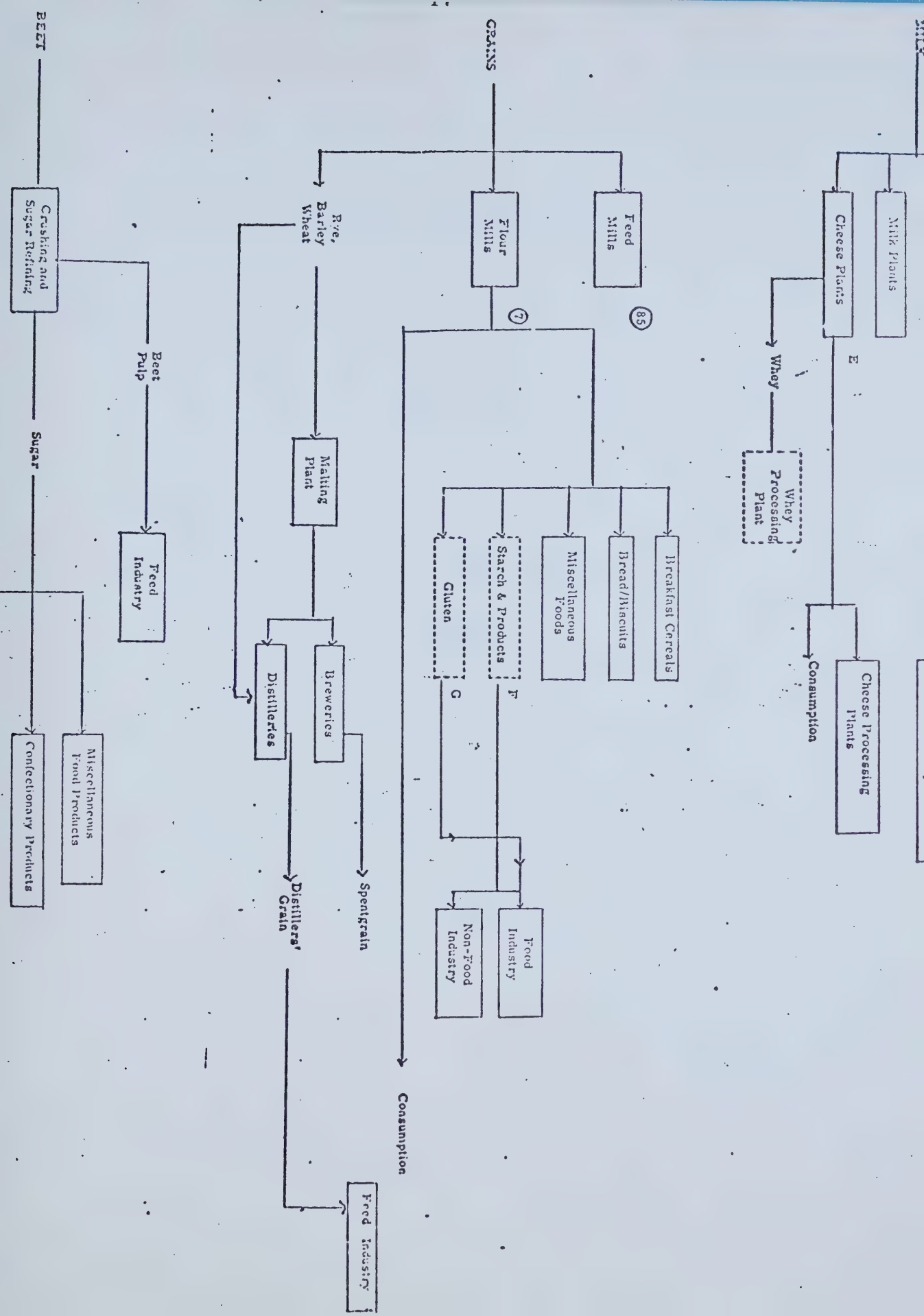
	Technicians	Construction Personnel	Operations Employees	Total Labor Force
1974				
I	40			40
II	50			50
III	80			80
IV	120			120
1975				
I	120			120
II	150			150
III	175	100		275
IV	200	150		350
1976				
I	200	200		400
II	200	250		450
III	225	300		525
IV	250	500		750
1977				
I	250	500		750
II	250	1,000		1,250
III	250	1,000		1,250
IV	250	1,500		1,750
1978				
I	250	1,500		1,750
II	250	2,000		2,250
III	250	2,500		2,750
IV		3,000	250	3,250
1979				
I		3,000	500	3,500
II		3,000	750	3,750
III		2,000	1,000	3,000
IV		1,000	1,250	2,250
1980				
I		750	1,500	2,250
II		500	1,500	2,000
III		0	1,500	1,500

APPENDIX V

AGRICULTURAL PROCESSING



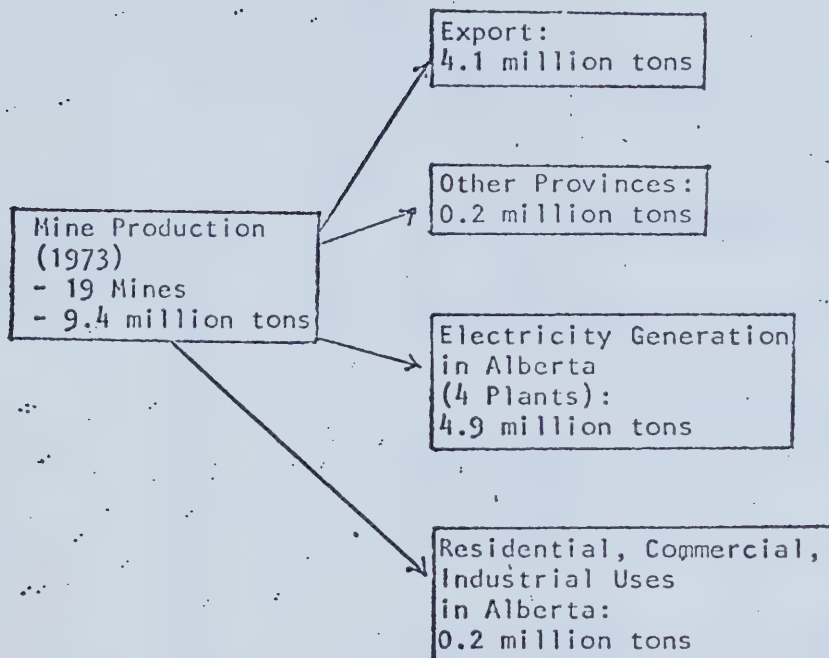
NOTE: (3) No. of Existing Establishments
(5) Proposed or Under Construction
[] Areas for Possible Development



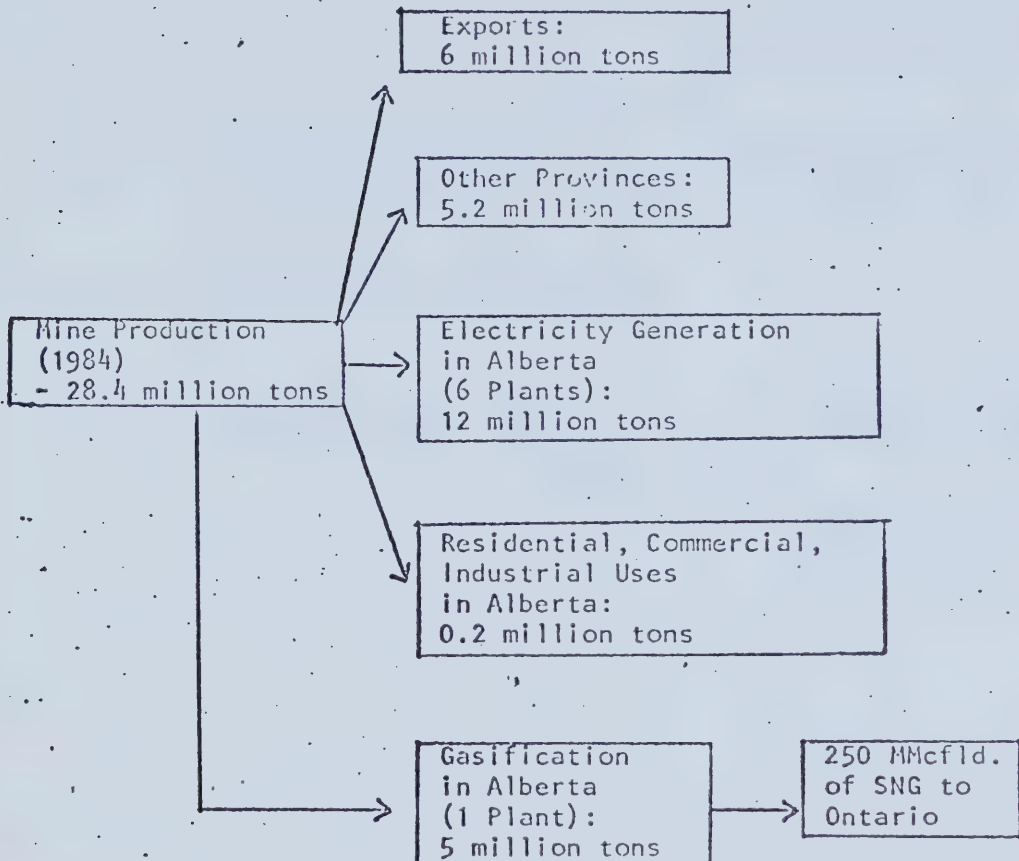
APPENDIX VI

COAL

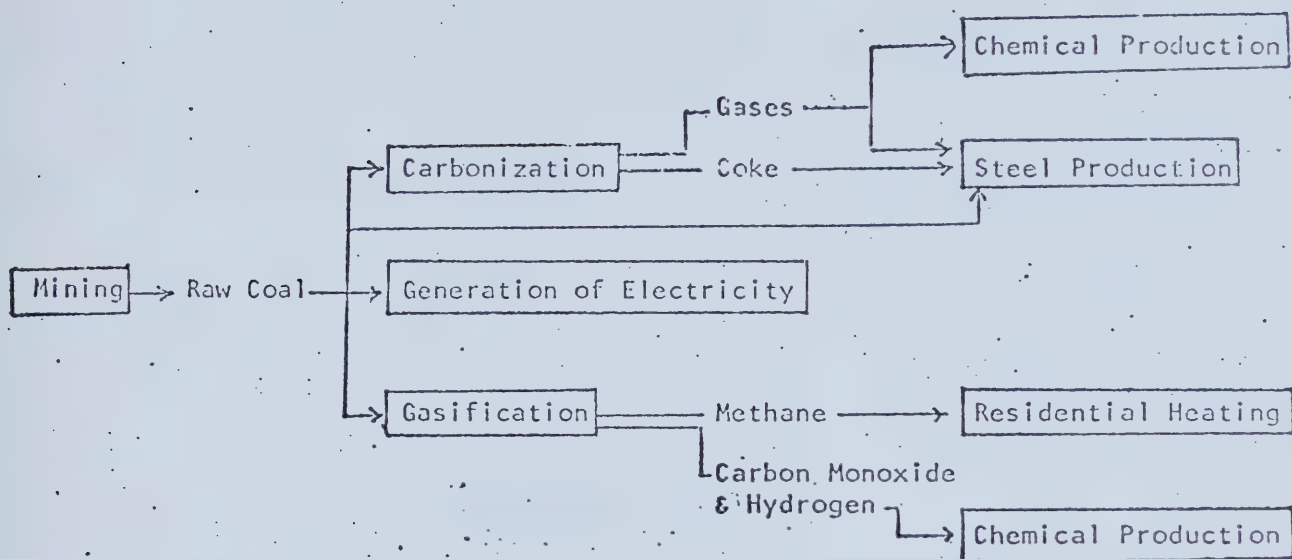
PRESENT STATUS OF THE COAL INDUSTRY



POSSIBLE DEVELOPMENTS IN ALBERTA'S
COAL MINES IN THE NEXT 10 YEARS



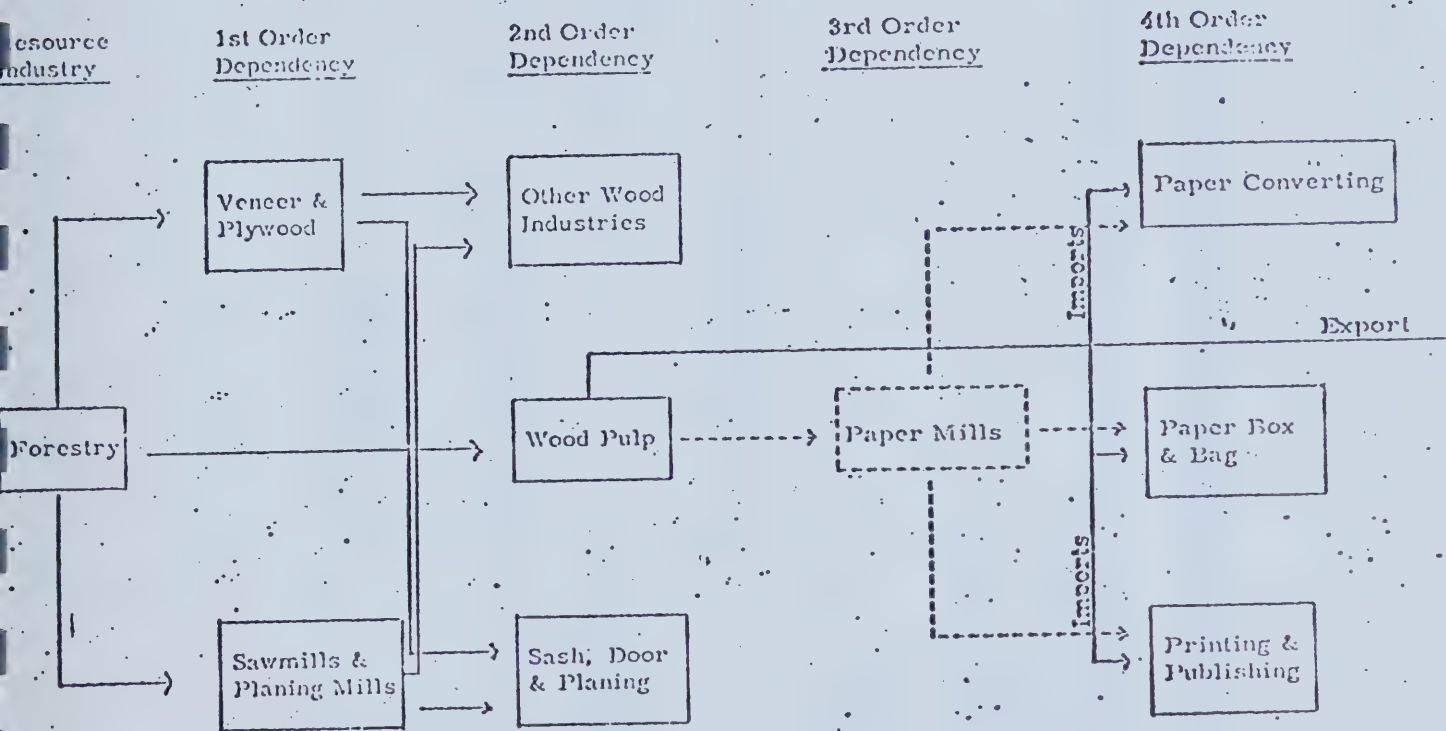
POSSIBILITIES FOR UPGRADING ALBERTA'S COAL



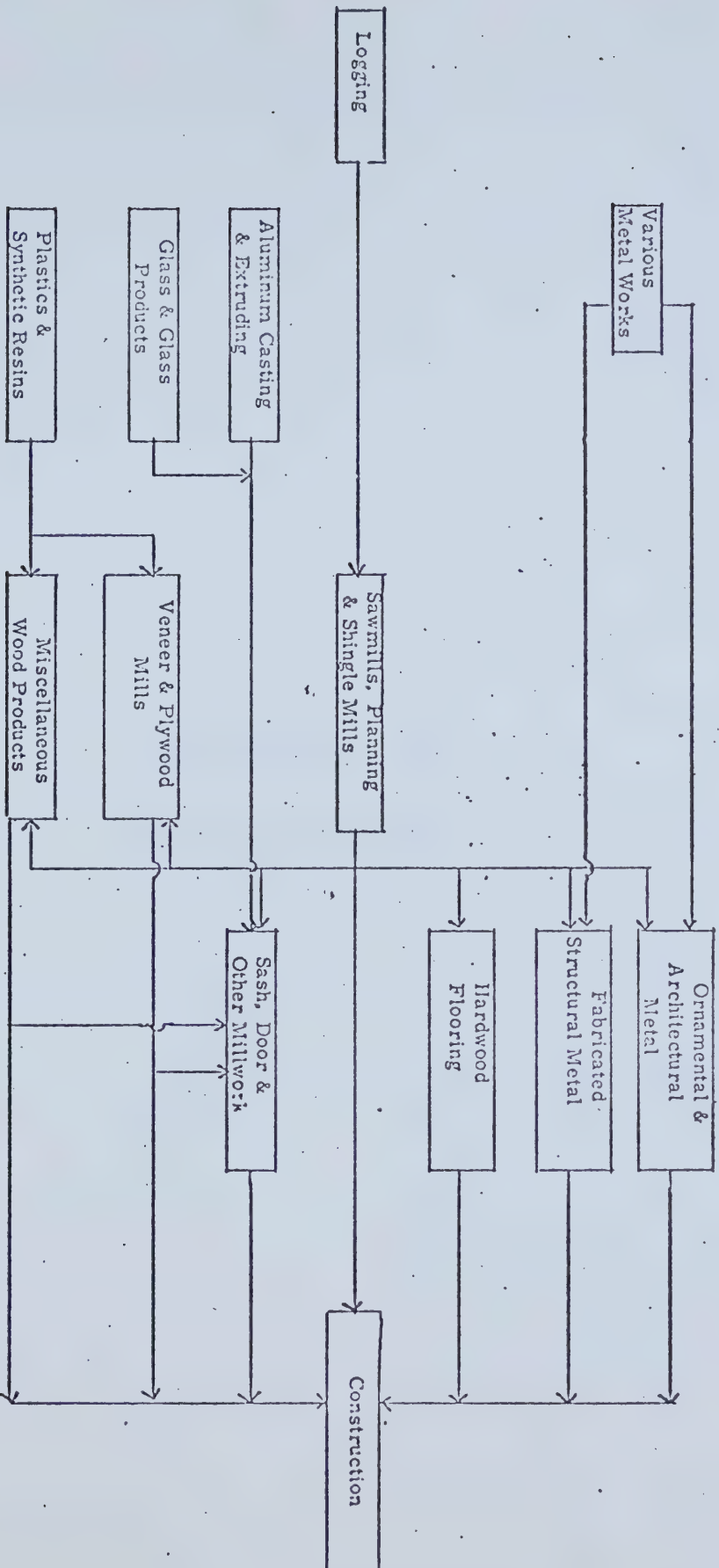
APPENDIX VII

WOOD PRODUCTS DEVELOPMENT STRATEGY

ALBERTA
FOREST INDUSTRY LINKAGE PATTERN



WOOD-BASED LINKAGES IN THE CONSTRUCTION INDUSTRY



APPENDIX VIII
PETROCHEMICALS

SUMMARY OF THE ALBERTA PETROCHEMICAL INDUSTRY

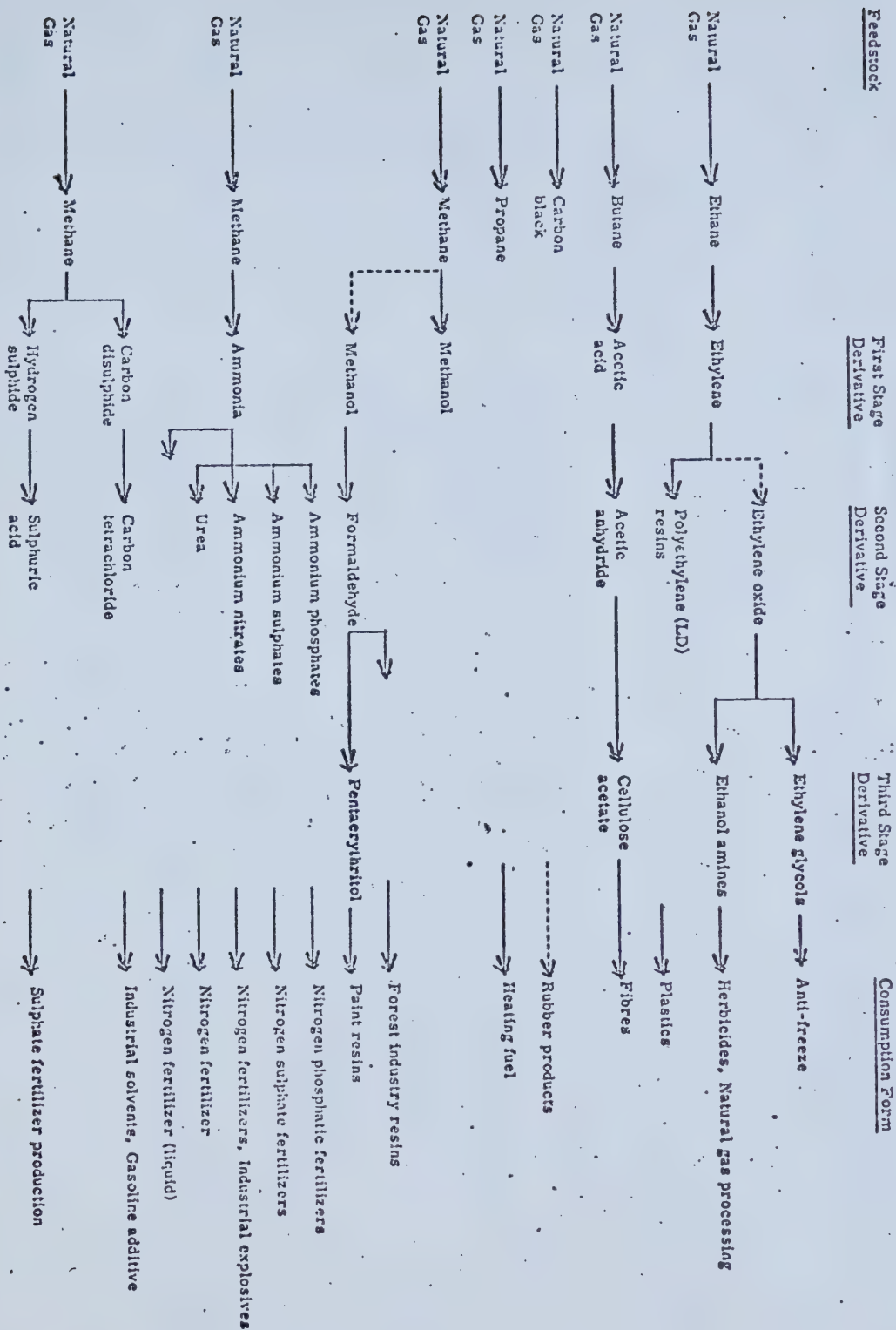
- October 11, 1974 -

COMPANY	LOCATION	FEEDSTOCK	PRODUCTS	ANNUAL CAPACITY
Alberta Gas Chemicals	Medicine Hat	Methane	Methanol	219,000 Tons
Cancarb Ltd.	Medicine Hat	Methane	Thermal Carbon Black	40 MM lbs.
Canadian Industries Ltd.	Edmonton	Ethane	Ethylene	70 MM lbs.
		Ethylene	Polyethylene (LD)	70 MM lbs.
Celanese Canada Ltd.	Edmonton	Butane	Acetic Acid and Anhydride	160 MM lbs.
		Methanol	Formaldehyde	200 MM lbs.
		Formaldehyde	Pentaerythritol	55 MM lbs.
Cominco Ltd.	Calgary	Methane	Anhydrous Ammonia	120,000 Tons
			Ammonium Nitrate	70,000 Tons
			Urea	80,000 Tons
Dow Chemical Ltd.	Fort Saskatchewan	Ethylene Oxide Ammonia	Ethylene Glycol Ethanolamines	85 MM lbs.
Esso Chemical Ltd.	Redwater	Methane	Anhydrous Ammonia	220,000 Tons
		Phosphoric Acid Sulphuric Acid	Ammonium Phosphate Ammonium Phosphate Sulphate	500,000 Tons
Pacific Resins Ltd.	Edmonton	Formaldehyde	Urea-Formaldehyde Resin	30 MM lbs.
			Phenol-Formaldehyde Resin	
Sheritt Gordon Mines Ltd.	Fort Saskatchewan	Methane	Anhydrous Ammonia	155,000 Tons
		Urea	Urea	105,000 Tons
		Sulphuric Acid Phosphoric Acid	Ammonium Sulphate Ammonium Phosphate	320,000 Tons
Thio-Pet Chemicals Ltd.	Fort Saskatchewan	Methane	Hydrogen Sulphide	8.5 MM lbs.
		Sulphur	Carbon Disulphide	9.5 MM lbs.
Western Cooperative Fertilizers Ltd.	Medicine Hat	Methane Phosphoric Acid	Anhydrous Ammonia Ammonium Phosphate Ammonium Nitrate	65,000 Tons 260,000 Tons
	Calgary	Methane Phosphoric Acid	Anhydrous Ammonia Ammonium Phosphate Ammonium Nitrate	425,000 Tons

PETROCHEMICALS MANUFACTURED FROM NATURAL GAS

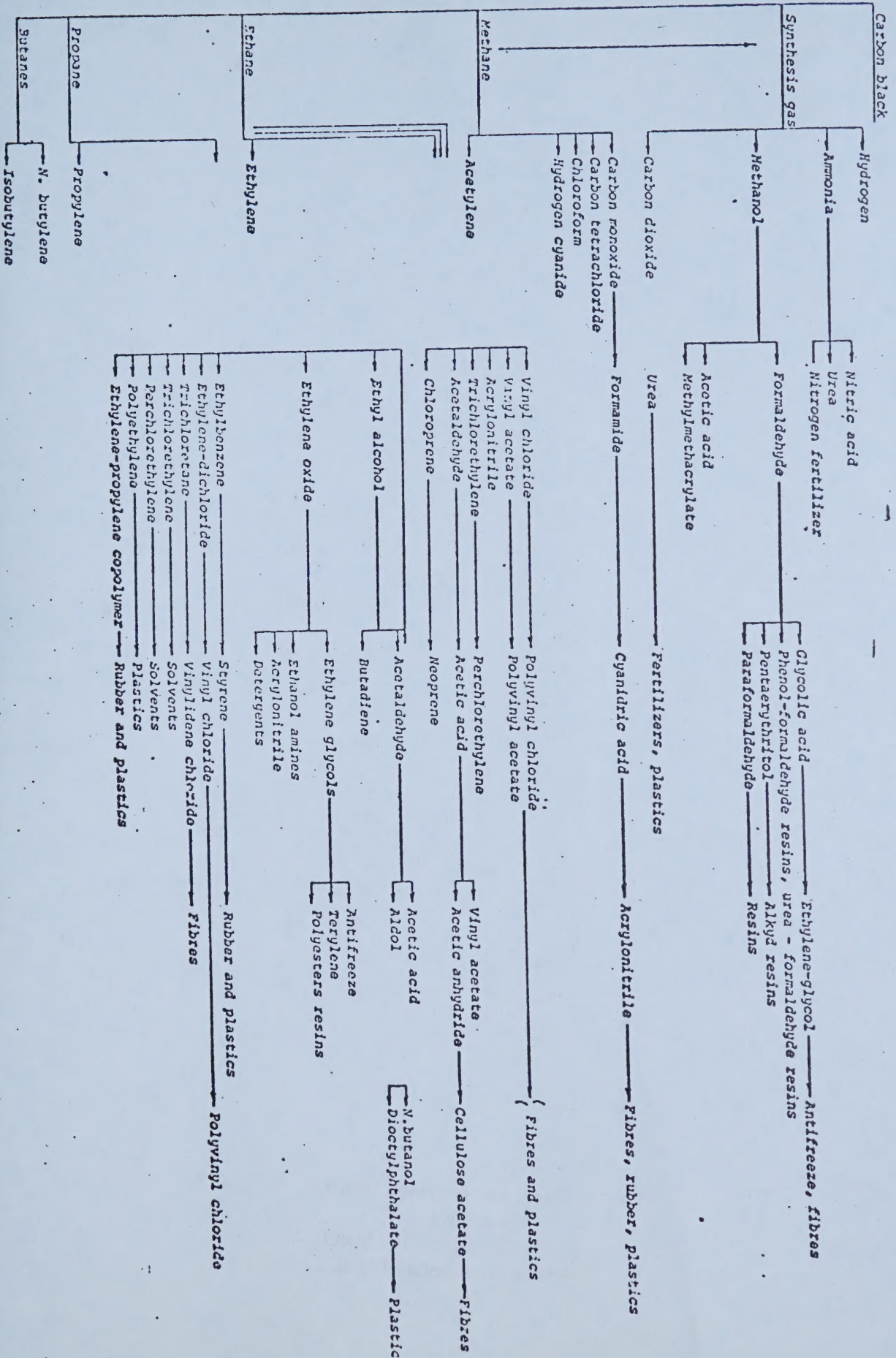
- September 1974 -

Note: Broken lines indicate that the derivative is imported into Alberta.
Solid lines indicate existing derivative production within Alberta.



NATURAL GAS

PETROCHEMICALS MANUFACTURED FROM NATURAL GAS: MAIN PETROCHEMICAL ROUTES



Alberta Government Library
Commerce Place
5th Floor, 10155 - 102 Street
Edmonton, Alberta T5J 4L6

Alberta Government Library
Commerce Place



0 1638 00082 0247